

**STRATEGIC VISITOR & FERRY MANAGEMENT PLAN:
Boston Harbor Islands National Park Area**

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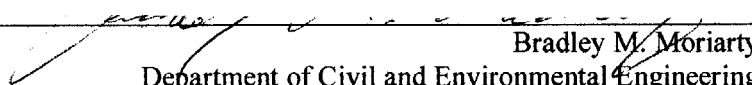
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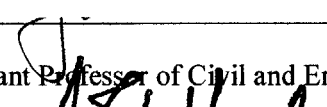
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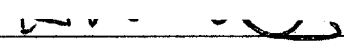
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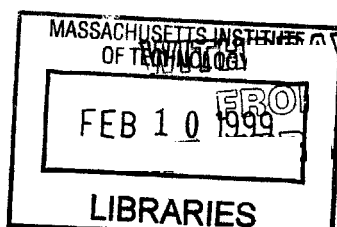
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ABSTRACT

This document summarizes the creation and use of a spreadsheet model designed to estimate the visitor capacity, revenue and expense streams, federal matching funds and distribution of revenue by provider of the Boston Harbor Islands National Park Area (BOHA). The model was created under the auspices of the Massachusetts Port Authority (Massport) and the National Park Service (NPS). George Price of the NPS, and Kathy Abbott of the Island Alliance, along with Andrew Hargens of Massport helped define the scope of the model.

The BOHA Partnership, made up of thirteen members from various federal, state and local agencies, estimated that the target number of visitors should be around 500,000. The capacity section of the model shows that the capacity of BOHA depends mostly on the capacity and frequency of the ferry system rather than the inherent ability of any island to support a certain number of visitors. In fact, the capacity of the park using the existing ferry system is nearly 700,000 visitors per season. This assumes that many people would want to visit the park.

The model and its illumination of the importance of ferry service led the author to propose one possible future for the park based on a high usage concept. Using an electronic ticketing system to keep track of island usage and ferry performance, the partnership would aim for over 1,000,000 visitors per season, concentrated mostly on two islands, Spectacle and Peddock's. The ferry system would be contracted out to two or more providers who would receive compensation based on the number of passengers who chose to use their electronic tickets for that particular provider. In this way the ticket price could be fixed (and perhaps discounted for particular users) and the providers would compete for business based on customer service.

The importance of the electronic ticketing system to the field of park planning hinges on the historically poor data for urban parks in the literature, the data potentially gathered would drastically change the information landscape for parks of its kind in the United States. It would also allow the partnership to protect the natural resources by gauging the use of the system more accurately.

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EXECUTIVE SUMMARY

KEYWORDS: Management, Strategy, Island, National Park, Infrastructure Delivery, Ferry, Managed Competition, Contract, Negotiation, Capacity Utilization, Visitor, Process Flow, Environment,

OVERALL GOALS DURING GROWTH:

- Protect and Preserve The Islands for Future Use.
- Maintain the Experience for Visitors (e.g. keep the “island feel”, make it easy for visitors to come and go, keep ferry costs down).
- Never Turn a Visitor Away.

THE CONTRADICTION:

- Grow the Park and bring as many visitors as possible.
- Too many people on The Islands will destroy the isolated feeling and potentially the resource itself.

THE SOLUTION:

- Create a distribution **hub-island(s)** on a less sensitive island, where many thousands of visitors can congregate, see the skyline over the harbor, visit attractions, spend money and enjoy themselves.
- Allow unlimited access to the **hub(s)**.
- Provide limited access from the **hub(s)** to the more sensitive islands, preserving them and their ecology.

IMPLEMENTATION:

- Make Spectacle Island the first **hub-island**, then Peddock’s.
- Keep George’s as the **hub** while infrastructure and attractions are built on Spectacle.
- Once services, attractions (centered around a new Aquarium Marine Animal Rescue Center), and docking become available, switch mainland ferry service to new **hub** on Spectacle, begin major advertising push at this time.
- Sell tickets through BankBoston ATMs in preparation for electronic ticketing.
- Maintain the sole-source ferry contract through the transition.
- Once visitor levels stabilize and begin to grow, separate ferry service into “free shuttle” and mainland service.
- As visitor levels approach double the number at transition, move to managed competition between two or three ferry providers plus the “free shuttle”.
- Bid “free shuttle” on minimum cost to the Park for specified service.
- Bid mainland service on maximum landing fee per visitor paid to Park.
- Develop a comprehensive and fair dock schedule for the **hub-islands**, and standards for all ferry services from safety to price.

1.0 A REVIEW OF THE FIELD

This Park finds itself in both rare and unique circumstances. While the formation of a National recreation Area is not unusual, the combination of public-private partnership, required ferry service and legislated limitations makes the Boston Harbor Islands National Recreation Area quite individual (now called the Boston Harbor Islands National Park Area, BHINPA or BOHA, in deference to the Native Americans who bristle at a former internment camp named a “recreation” area).

While there are many National Recreation Areas (NRAs) that one might compare to BOHA, the most appropriate is the Golden Gate NRA. Formed by legislation in 1972 (Benton 1998), the GGNRA encompasses a vast area surrounding the San Francisco Bay Area. Like BOHA, the GGNRA counts its coastline as one of its primary assets and the natural conditions are made historically valuable by the presence of military installations (Denver Service Center 1994). The

GGNRA also mimics BOHA in that it utilizes a public-private partnership to help administer the Area.

There however, the similarities end. BOHA requires the use of ferries to access the Park Area, and has many fewer military installations than the GGNRA. Of the factors that influence the decisions at BOHA, the few that arose in a search of the literature were:

- Use vs. preservation.
- Traditional Park Service management vs. public-private partnership.
- The status of “Recreation” Areas vs. traditional Parks.

1.1 USE VS. PRESERVATION

The first and the third are actually quite connected because the traditional National Park Management style developed managing the crown jewel parks like Yellowstone (Pritchard 1996). In their interaction with the U.S. Forest Service, the National Park Service (NPS) developed a sensitivity for the natural condition of the wilderness (Pritchard 1996) (Sellars 1993). This method of managing a Park serves the crown jewels very well. The natural resources of these great landmarks have stood for millions of years and their great beauty comes from the natural process of the elements taking their course (Rothman 1992). It stands to reason that the NPS would err to the side of doing less rather than more because less helps preserve the resources.

The GGNRA and BOHA have a very different situation. The principal resources in those Areas are their man made objects. In the Presidio the different forts, barracks and parade grounds occupy prominent places in the landscape. The Golden Gate Bridge itself was designed to span over Fort Point, the northern most outpost in the Presidio, rather than destroy it (Paine 1938).

These man-made resources behave exactly opposite to the resources of the “Crown Jewels”. Every day that passes without human intervention pushes these resources further into disrepair. The development plan for the Presidio understood this dilemma and planned to use the attractions of the Presidio to generate cash for operations. In particular the NPS hoped to use the golf course on the

Presidio's high ground as a source of funds (Benton 1998). This was a source of considerable debate as the Army chose, very late in the negotiations, to exercise a small clause in the legislation that formed the park. That clause stated that the Army could continue to occupy any areas of the Presidio that it deemed necessary to its mission (Benton 1998).

The Army desired the greens fees for its own operations, and at \$10,000 per year those fees might add up to a substantial number (Benton 1998). All this goes to show that the Army and the NPS were keeping a close eye on the development of the Presidio and the potential sources of revenue that development might produce.

1.2 PUBLIC-PRIVATE PARTNERSHIPS

When the Denver Service Center developed the management plan for the Presidio they knew that they would not be able to administer all of the various programs and tasks associated with a more "hands-on" park. To supplement the skills of the NPS the management plan calls for the creation of a private organization to bring development, financial, and managerial skills to the table (Denver Service Center 1994). The Denver Service Center also sought out examples where such a partnership worked before. They list the Fort Mason Foundation, the Lowell Commission, the Salem Partnership and the Pennsylvania Avenue Development Corporation as cases where a public-private partnership worked to the advantage of the Area.

Clearly the partnership concept was not novel to the Congress when they formed the partnership for BOHA. However, the partnership formed for the GGNRA shows that the NPS held the lion's share of the financial responsibility, followed closely by the Army (Denver Service Center 1994). The Private partner seems more for financial management skills and service than actual financial support.

BOHA, by contrast places the NPS in a very subservient role. The NPS gets no guaranteed money to help support BOHA, only a pledge to try and match one dollar for every three that the partnership raises. The NPS is merely one of 13 partners each with an equal vote on the issues facing

BOHA (National Park Service 1994). This is clearly a very different kind of partnership from those formed prior to 1996.

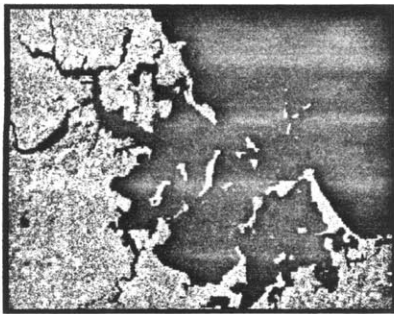
1.3 “RECREATION” AREAS VS. “PARK” AREAS

One of the most interesting phenomena came to light in Ms. Benton’s discussion of the use of the term “Recreation” in place of “Park” in the formation of Nationally protected spaces. Ms. Benton states that the term “Recreation” was used principally to denote an urban space of some value to the nation (Benton 1998). Looking over the different Recreation Areas, the most common thread is the urban landscape surrounding the protected space. The author observes that some of these areas are the only green space in the urban environment and offer habitat to rare indigenous plant life. Others are purely urban in nature and protect historic buildings and locations.

Ms. Benton outlines the trend toward labeling any protected space in close proximity to an urban center a “Recreation” Area. This was of particular concern to the supporters of the Presidio project because the “Recreation” Areas were seen as sub-standard compared to the “Park” Areas and often received less attention and financial support (Benton 1998).

The author believes that the BOHA partnership forms the next step in a very logical progression that fits the “smaller government” movement on Capital Hill in Washington DC. The “Recreation” Areas, according to Ms. Benton were moving towards less and less funding – BOHA received only the chance of a match, very close to no funding at all (Benton 1998). Also according to Ms. Benton the more urban spaces set aside for protection have become less valuable in the eyes of the government; so it stands to reason that legislation would move toward removing the government (eg. the NPS) from the management of the more urban Areas.

2.0 INTRODUCTION TO THE MODEL



The Boston Harbor Islands draw people for a number of reasons. In the past they served to isolate, protect and provide for the early inhabitants, and they continue to do so today. These Islands, a geological rarity in the world, come from glacial and geological activity and the particular height of today's sea level.

For the past several hundred years these flooded mounds of glacial till allowed the inhabitants of the area to stake out defined places for agriculture, imprison unwanted elements of society, and hide those situations deemed unsightly by the general populace.

The Islands, for the past 20 years a state Park, now fall under the stewardship of a diverse group of partners. This new partnership brings together citizen's groups, state departments, individual owners and National Park Service, in an attempt to organize and preserve this resource for improved use and future enjoyment. The change in management of The Islands may give the people

of Boston a chance to rediscover this place that helped define us, and perhaps learn about the ways that human nature takes advantage of geography. However, there exists the distinct possibility that political disputes and inefficient or insufficient planning will stir the waters momentarily but in essence change nothing.

The only way to ensure an improved future for The Islands is to plan a direction for that future. Without a goal and plan of action to achieve that goal, the well-meaning efforts of the new management may develop The Islands in ways that contradict each other. This thesis will outline, for those unfamiliar with the Boston Harbor Islands, the reasons why these Islands are worth preserving, and how the new management might go about effecting that preservation. This thesis will also detail the importance of a theme upon which the Park might grow. The importance of a theme cannot be underestimated. While it may change or expand over the life of the Park, it will act as a catalyst for discussion when choices are made about development.

The management plan for the Park hinges around the number of visitors the Park can reasonably accept. This thesis generates a model of visitor capacity that lends some objectivity to the numbers thrown around by the members of the partnership. The model, based on concepts from the CHOICES model generated at MIT by Assistant Professor Miller, uses the local estimates of individual Islands' capacity in combination with other variables including ferry schedules to generate an overall picture of Park capacity.

The eventual strategy for dealing with a five-fold increase in visitors revolves around the visitors' experience of The Islands. What will draw visitors out to The Islands? How will they make the trip, and what will their experience be like? How easy will it be to go from island to island and get back to the mainland? This thesis provides some answers to these questions as well as strategies for organizing the ferries and negotiating contracts with those ferry providers.

2.1 WHY THE NEED FOR A VISITOR MANAGEMENT PLAN

While a management plan improves planning at any stage in an organization's life, this time is particularly crucial for the Boston Harbor Islands National Park Area. The reasons for developing and implementing a plan include geological, historical and managerial points. The geological and historical reasons existed for hundreds if not thousands of years and continue to this day. The managerial reasons are more urgent, because any course of action taken in the next few years will define the momentum of the Park for the next half century. Changing that momentum, even for good reasons, will be difficult to do.

Given these factors outlined below, the need for a coherent plan is pressing and should be addressed.

2.2 GEOLOGY

Many hundreds of thousands of years ago a geological shift in the plates under the New England area formed the depression known today as Boston Bay. Some time later, in the Pleistocene Era (National Park Service 1994), glacial action deposited the base that supports the Boston Harbor Islands and much of the greater Boston coastline. Any creatures walking the landscape of the time walked between five and ten miles further beyond today's waterline before getting their feet wet. The glaciers retreated leaving a landscape we can only theorize today.

Sixteen thousand years ago, many years after those first glaciers crept to higher latitudes, the ice returned, pushing in front of and underneath it a finely ground collection of rocks and minerals. This second wave of glacial action eventually retreated. While the mechanism of glacial deposits seems straightforward, the presence, orientation and appearance of the mounds that remained, called drumlins, adds some confusion.

Drumlins are mounds of material in a teardrop shape, some call them overturned "spoons", some "whale backs". There are many theories of how drumlins are formed, but the consensus is that drumlins form as the glacier retreats. The mechanism is open to debate but most agree that drumlins

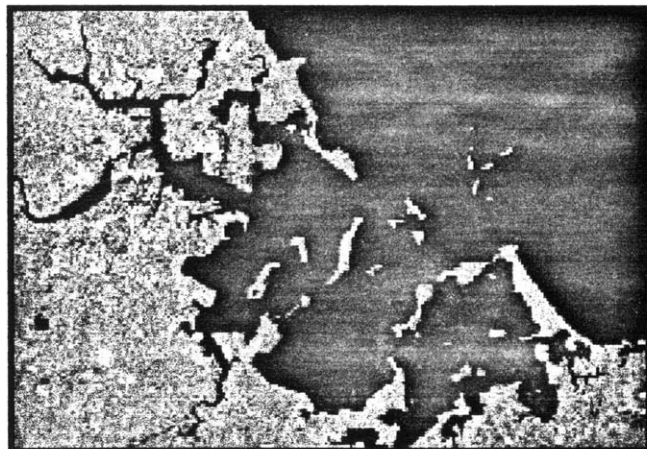
face in the direction of glacial flow. The teardrop's narrow end points away from the source of the glacier (National Park Service 1994). Often many drumlins are seen together in a field of oriented bumps that seems to map the path of the glacier the way mud bumps tracked onto smooth pavement map the path of a jeep.

Most drumlin fields occur in landlocked areas, like this photo of a drumlin in England. The drumlin field that comprises the Boston Harbor Islands is unlike most drumlin fields in two ways. The drumlins do not line up in any



particular direction and, as the sea level rose over the last 16,000 years, the ocean flooded this drumlin field, creating The Islands and Boston harbor (National Park Service 1994).

Looking at the collection of Islands in the following map it's possible to see, even without knowing the direction of the slope of each island that they point in different directions. Possibly these drumlins came from the two different glacial periods. The presence of different layers of glacial till seems to support this theory as some Islands have very little of the second, or more modern till.



The till from the earlier glacial action contains pulverized shells and other material that raise the pH of the resulting soil. The higher pH gives the soil a naturally preservative nature by inhibiting the growth of decay causing bacteria. Many of the historical artifacts recovered from The Islands come from this first till layer, and remain to this day because of the isolation of The Islands and their lack of suitability to expansionist minded settlers (National Park Service 1994).

The unique occurrence of a flooded drumlin field provides reason enough to value this resource, but the nature of the soil combined with its proximity to one of America's earliest settlements, gives these Islands tremendous historical value as well.

2.3 HISTORY

Islands across the world attract human activity. Natural boundaries and ease of defense, among other reasons draw humans to these isolated worlds. The Boston Harbor Islands are no exception. Artifacts and other evidence used by Archeologists point to human use of The Islands as far as 8000 years ago (National Park Service 1994). On Peddock's Island in 1960, a 4100-year-old human skeleton was uncovered, the oldest discovered in the New England area (National Park Service 1994).

Native American use consisted of more than seasonal camps and hunting sites; John Smith noted in his journals of 1614, "here are marry Isles all planted with corn." (National Park Service 1994) This suggests organized agricultural use of The Islands prior to the early contact period. As English settlers pushed out the Native Americans and time passed, The Islands showed evidence of industrial and defensive uses. In fact, The Islands provided the Boston Harbor with defense from the days of the very first settlements.

Today visitors see nearly intact remains of Fort Warren on George's Island, a National Historic Landmark from the Civil War era. Other Civil War era sites are Camp Wightman on Long Island and a Civil War conscript center on Gallops. Many Islands supported defensive structures during the first and second world wars, including a Nike missile site on Long Island that stands today, one of the last in the country (National Park Service 1994).

Deer Island witnessed one of the greatest wartime atrocities in Boston's history. During the King Philip's War against the Native Americans, loyal indigenous persons, converted to Christianity a half generation before, were interred on Deer Island for the duration of the war (National Park Service 1994). In a gruesome parallel to the Japanese internment camps, the English descendants

pushed away those they feared because of their appearance. Except in the case of the Native Americans the conditions on Deer Island were sufficiently brutal to cause the death of more than half their number. Deer Island, managed by the Massachusetts Water Resources Authority (MWRA), now supports the latest technology in wastewater treatment, including a collection of massive digester “eggs”, visible from many of The Islands.

The Islands also provided navigational assistance and recreational opportunities to the growing population of Boston. Boston Light, the other National Historic Landmark situated on an island in the harbor, sits on Little Brewster Island. The site of the light marks the location of the oldest lighthouse in the United States. The original lighthouse, dating from the early 1700’s, was destroyed by the retreating British troops in the late 1770’s and rebuilt in 1784. The completion of the lighthouse at Sandy Hook New Jersey in 1764, makes Boston Light the second oldest standing lighthouse in the nation.

Over the course of time The Islands have gone from private ownership to public. Only Thompson’s Island remains a truly private island, and their representation on the Partnership board is evidence of that unique status (National Park Service 1994).

Spectacle Island, once a trash-heap so fetid and foul that it was set ablaze - now the repository for Central Artery Tunnel (CAT) waste-earth, is the least ecologically original and least sensitive of The Islands. George Price, NPS director of the BHINRA, quotes a story saying that the combination of wastes formerly on the island transformed into a gooey mass that hid under a thin veneer of dirt. So thin was this veneer that a person of average strength could punch their hand through the surface and pull out a fist-full of the ooze. George Price also asserts that the CAT project pledged a new wharf/pier to the island in exchange for the privilege of depositing waste there (confirmed by Andrew Hargens of Massport).

George’s and Peddock’s remain the historical draws of The Islands. Managed by the Metropolitan District Commission for the duration of their tenure as State Park Islands, these two islands showcase Civil War buildings and act as the primary visitor areas in the Park.

In order for the Park to grow and at the same time preserve The Islands for future use, these two most sensitive islands require use management. The difficult problem remains how to provide a satisfying BHI experience for a large number of visitors, yet preserve these resources for the future.

2.4 CURRENT LEVEL OF VISITORSHIP VS. GOAL LEVEL (AND GROWTH BEYOND)

For the past several years, according to Diane Haynes of the Department of Environmental Management, and Ranger Thom Duggan of the Metropolitan District Commission, the number of visitors to The Islands stayed at about 90,000 per year. From talking to visitor support groups, environmentalists and the National Park Service staff for the Boston Harbor Islands, the number of different people who visit The Islands is even lower. The current visitors are very likely to visit more than three times in one season, several visit even more regularly over the course of the summer.

This means there exists tremendous potential to increase the number of visitors over the next five to ten years. The managers of the Boston Harbor Islands (BHI) hope for increases to 500,000 visitors over the next several years. Naturally this raises questions regarding the capacity of the BHI to withstand that kind of traffic. The partnership assumes that people want to see The Islands in a relatively pristine state; will 500,000 visitors ruin the trails and walkways? The partnership also assumes an expectation of a rural experience, which means running into fewer people on an island than one runs into on a city street. Kathy Abbott of the Island Alliance and many other island supporters, however, want to maximize the number of people visiting The Islands, provided they have a quality experience.

This leads to questions of how many people the Park can really take, and how to get those people interested in the Park and out to it if they so desire. The previous management of the BHI consisted of several State and local agencies whose thinly stretched resources funded not only The Islands but also the many other public spaces and nature preserves in Massachusetts. In an effort to preserve the Island resources DEM and MDC use in-house estimates of the capacity of each island.

For example, MDC estimates that 3,000 visitors can occupy George's Island at one time and maintain the quality of the visitor experience while preserving the resource. These estimates come from best-guess estimates made by rangers like Thom Duggan of the MDC and others.

Gallop's and Lovell's Islands have no current ferry service so a definitive estimate never arises, but those islands host visitors who arrive in their own boats. Peddock's Island, with a new pier ready for visitors, boasts some of the most improved roadways and trails in the whole island system. Those roads and trails make Peddock's one of The Islands most suited to intense visitor use. Even so, according to George Price and Diane Haynes, the estimate of visitor capacity for Peddock's matches that of George's.

Modest usage of the Park gave little incentive to the former management organizations to accurately measure the damage done to The Islands by a given number of visitors. The available numbers are just estimates made by experienced rangers and managers. These estimates served the purpose given the small number of people visiting The Islands each year. However, if the number of visitors increases at the rate needed to achieve the goal of 500,000 visitors in the next few years, a more accurate measure of Island impact is needed. As yet there are no plans for a more accurate means of gathering that data.

Regardless of the number of visitors each island can take, the need for management of those visitors remains. Proper scientific studies of The Islands as a resource may or may not show errors in the current estimates. A management plan that considers the ecological fragility of The Islands and provides a mechanism to protect them requires only adjustment if those numbers turn out to be incorrect. A lack of a management plan that takes those factors into consideration creates an inevitable conflict with the status quo.

Letting the organization follow the existing momentum squanders the opportunity to change the way the Park operates while the public expects change. Once the Park heads down a particular path, its ability to change direction decreases dramatically. This choice of direction requires careful

thought and consideration on the part of management so that the Park can establish the reputation of consistency crucial to the tourist trade.

2.5 UNIQUE MANAGEMENT STRUCTURE

The Boston Harbor Islands have been a state Park for the last 20 years. With the help of Representative Gerry D. Studds, The Islands were included in the 1996 legislation creating a number of new National Park Recreation Areas. The unique features of this Recreation Area revolve around the management structure. The Park management will include representation from all of the interest groups that dealt with the Park prior to the legislation. That includes The Department of Environmental Management (DEM), the Metropolitan District Commission (MDC), the Massachusetts Water Resources Authority (MWRA), the Massachusetts Port Authority (Massport), the City of Boston (BOS), the United States Coast Guard (USCG), The Thompson Island Outward Bound Education Center (TIOBEC), the Island Alliance (IA), the Boston Redevelopment Authority (BRA), The Trustees of Reservations (TTOR), the National Park Service (NPS), two local representatives taken from the committee of interested citizens.

The partnership structure gives the Boston Harbor Islands National Recreation Area, now known as the Boston Harbor Island National Park Area, (BHINPA) a degree of flexibility not known by any other Park in the system. The NPS is not allowed to solicit funds or procure advertising for its parks. The private sector partners, however, are not so constrained. This gives the BHINPA the ability to raise funds and advertise the benefits of the Park to the general public. The diversity that allows this flexibility also leads to problems of agreement among the partners, which prevents quick decisive action.

This management structure increases the need for a definitive plan of action. The absence of such a plan will allow each partner to pull the Park in a self-serving direction that might not be in the best interest of the Park as a whole. Forcing the partnership to agree on a direction at this phase, while difficult, will allow decisions in the future to be made more quickly, as the group will only have

to determine if the decision follows the plan. While this is an over-simplification, and the partnership is under statutory obligation to produce a management plan, there is every chance that the partnership will create a plan that allows them to keep pulling against each other rather than pulling together.

2.6 INFRASTRUCTURE, DEVELOPMENT AND VISITOR MANAGEMENT

The original focus of this thesis revolved around the use and delivery of ferry services. That infrastructure development however, does not exist in a vacuum. The overall plan for use of The Islands determines where the ferries land and how many ferries may exist at one time. If the ferries continue to offload passengers on George's Island the limited dock space and the sensitivity of the island will place severe restrictions on the number of visitors who may arrive in a given day.

If, however, the ferries drop their passengers on a less sensitive island with better facilities, Peddock's or Spectacle for example, then some of the limits cease to control the situation. If the goal of the organization is to maximize the number of visitors who can safely and enjoyably visit The Islands, then they must plan for the routing and volume and activity of the future visitors. The ferry structure and contract arrangements follow from there.

This thesis provides a strategy to develop The Islands and the ferry delivery strategy that should accompany it. While the majority of this thesis deals with issues relating to the modeling of visitor capacity and ferry delivery strategy, the overall strategy controls the situation. Without following a carefully laid strategy for the Park as a whole the individual scenarios developed here become invalid. This author strongly recommends developing the theme and the central distribution point as outlined in the conclusions. Naturally with all things connected as they are, first things come first.

2.7 SUMMARY

This thesis outlines a direction for the Boston Harbor Islands National Park Area. The Islands, geological and historical treasures in their own right, exist on the cusp of a new era in use and

enjoyment. The transition of the Park into the hands of the new partnership with the National Park Service presents a tremendous opportunity to the management team. The time is ripe to change the old momentum and establish a new face and direction for the Park. To let this chance pass by is to give up the full potential of The Islands.

Planning now for the future use of the Park and charting a direction into that future should occupy the minds of every person working for the Park. Keeping open minds to all the possible options and futures for the Park gives the BHINRA the greatest possibility for success. The author urges the management to carefully consider the concepts behind this management plan. The details are destined to change, but the themes of visitor satisfaction, education, and historical preservation hold the concept together and can hold the Park and partnership together.

3.0 IMPORTANT ELEMENTS OF THE MANAGEMENT PLAN

This thesis assumes that maximizing the visitor experience is the primary goal and the more visitors the better, provided that the Park itself does not suffer as a result. Like any business that provides education or entertainment the key is attracting people to your place of business. This Park is no exception.

Like a business the Park must decide on a face they will show their customer. If the customer is unclear about what the Park is about or why they are going to visit, then the resulting confusion will prevent the Park from growing efficiently. The best way to maintain coherence is with a mission statement. Every corporation has a mission statement, and for businesses that attract people like this Park does (the Disney Theme Parks, Six Flags, Museums like the Smithsonian) that mission takes the form of a “theme”. For business reasons, the Park may want both a theme and a mission statement.

The difference between a theme and a mission statement exists in the customer’s mind. A correctly followed theme will be obvious to the visitor. The theme can be described in one or two

words, where a mission statement usually requires a sentence or two. When the visitor leaves the Park they should be able to answer the question, “what is the goal of this Park?” in one or two words. Those words are the theme.

The mission statement fleshes out the theme for the benefit of the people who work on The Islands. Every person who works in the Park should know when they confront a problem or decision point, what key factors should influence their decision. When that person makes their decision, if they follow the direction of the mission statement, no one should question their course of action. So the theme defines what the visitor sees and experiences, and the mission statement helps every person who works in the Park make decisions to follow that theme.

Like any other business, the Park needs to attract people to their place of business. The difficulty is that, while the Park sits in close proximity to a bustling metropolis, casual visitors to the area cannot see The Islands directly from the typical tourist attractions in Boston. Nor can they “just stop in” to see what it is like. This means that the BHINPA needs to create enough interest in its facilities that people will devote the planning and resources necessary for a trip.

Once the attractions and facilities are in place the public needs to know of their existence. This could include traditional advertising, buildings or events that attract media attention, a dedicated press campaign (press releases, articles written, books written etc.) or some combination of thereof. The choices of the Partnership at this point will determine the fundamental goals of the Park. These choices need to consider all of the factors outlined in this thesis, in addition to the political factors they are already aware of.

3.1 ATTRACTING VISITORS

The unique partnership allows the Park to advertise as long as the National Park Service does not become directly involved. The amount of money available for advertising is extremely limited and so any opportunity for free or low cost advertising must be considered. Also, any development opportunity must be viewed with an eye towards its potential for positive media attention.

Even if the partnership pays for advertising there needs to be something to advertise. The two basic questions arise,

What do The Islands have to offer the visitors

What do the visitors want?

The Islands offer the geological and historical Island attractions outlined above. They also offer an experience unlike any other within fifty miles. Standing on an island in Boston harbor, with the smell of the sea in the air and the view of the city skyline over the water, brings a feeling of exploration and adventure unknown in the urban landscape.

Each island contains layers and layers of history that demonstrate the changes in human kind, and our similarities to our ancestors. The cultural diversity so sought after by institutions and corporations today, existed in abundance in the Boston area in the past. Bringing the mistakes and triumphs of our predecessors to the fore will only help our future generations avoid making the same mistakes, and show the consistencies of human nature through time.

The Islands also offer a wide range of recreational activities from beach-going and picnicking to fishing and boating. Many islands offer miles of hiking and walking trails with beautiful vistas of the Boston Sky-line and surrounding towns.

These attractions offer tremendous opportunity for visitors and should be pushed heavily in any advertising campaign. The visitors, however, require services to accommodate a day's stay, such as restrooms and dinning facilities.

Therefor any infrastructure created must address the concerns of visitors and improve the experience of going to The Islands. Every island where people gather should have restroom facilities, but dinning facilities and shopping opportunities need not exist everywhere. The valid concerns raised by environmentalists and local groups concerned about abuse and destruction of resources need

to be addressed. Resources and infrastructure can not be added randomly. Since the Park will require some infrastructure to help accommodate the expected visitor load there needs to be a plan for growth and a strategy for delivering visitors throughout The Islands.

The geological and historical features of The Islands will bring many visitors every year if the word reaches them. However, getting the word out to every potential visitor by means of traditional advertising over-extends the available resources. And traditionally, advertising is a “what have you done for me lately” prospect. People will forget messages unless they are repeated regularly, but they will grow tired of a message repeated over and over. This means that traditional advertising, using regular mass distribution, will be very expensive and unless the Park is prepared to engage in a long-term advertising campaign, and the fundraising to support it, the benefits do not offset the risks.

This means the Park needs projects, buildings and activities that attract media attention, and/or low cost sources of advertising that have maximum impact.

The media can serve as a valuable source of public attention, but the risks are high and the lack of control over content is troubling. If the Park focuses on the needs of visitors and meets those needs while keeping the environment in mind, then the inevitable public noise over development will be net positive.

3.2 VISITOR MOTIVATION

There are a number of factors that impact visitor motivation, among them are interest level in the attractions listed above, convenience, variety of attractions and cost. The park, as explained, has the potential for tremendous selection of attractions. The more attractions available the more likely that one or more of them will interest a segment of potential visitors. With this in mind the importance of well-planned development of The Islands becomes obvious. As for the convenience and cost of the park, those factors relate directly to the ferry system and its flexibility and pricing. All of these elements must work in unison to generate visitor motivation.

The development strategy for The Islands must address these motivational factors. As regards the physical development of The Islands, the crux of the problem is one of variety. If the goal of the park is to attract the broadest cross-section of the population and generate sufficient cash flow to maintain the park in perpetuity, then The Islands must be developed to suit a wide variety of tastes and interests. The partnership is wrestling with this issue even now. The problem comes when this reality runs into the desire of nearly everyone to avoid spoiling the natural beauty of The Islands.

If development is to succeed it must address this concern. Essentially the problem is one of image. The park needs to generate cash flow. A very good way to do that is to rent space to vendors and other tenants so that they can conduct business on The Islands. The park also needs to protect The Islands from rampant commercialism. Investing considerable thought and design effort into this question will mean the difference between a natural park with a variety of options for visitors, and a commercial strip dropped five miles offshore.

The issues of convenience and cost cross all cultural and economic boundaries. If this park cost too much to visit it will never succeed. However, if the cost of a ferry ticket drops too low then the park will be responsible for the difference in cost of operating the ferry system. The costs of operating such a system means that ticket prices will be substantial until the number of visitors increases. With a large number of visitors the ferry operators can drive larger vessels and operate at a lower cost per passenger than they do right now with the smaller vessels they run currently.

Convenience is directly related to cost today because of the limited number of visitors. With the current contract the ferry operator, Boston Harbor Cruises, must run a ferry at the scheduled time regardless of the profitability of the run. This way the ferries run on time every day even if the vessels are almost empty.

3.2.1 ISLAND EXPERIENCE

It is the view of this author that visitors to The Islands experience a sensation unlike any other in the country, save perhaps Seattle. They ply the waters of Boston Harbor out of a bustling city

center and in only a few minutes stand on the sandy shores of an isolated world. The ability to “get away from it all” should provide substantial motivation to people who live in a city like Boston. Even the green spaces along the Charles River provide little respite from the crush of humanity that pervades Boston proper.

Living in Boston, people face growing crowds every day. The freeways, the subways and even the walkways overflow with people. Over 600,000 people call Boston home, and over 3,500,000 more live within the I-93 corridor (data from 1990 census: <http://venus.census.gov/cdrom/lookup>). The size of the city provides an ample source of potential visitors and significant motivation to seek out a place like The Islands.

The distinct advantage of the Boston Harbor Islands is their relative isolation, and the remote feeling that comes from having relatively few people around at a time. Maintaining that feel should be of prime importance to the planning efforts of the Park. Efforts to crowd people onto The Islands, even though well meaning, will destroy the ambiance long before the land itself suffers.

Visitor experience on The Islands should include, if they want it, a sense of isolation, and every effort should be made to maintain that sense.

3.2.2 NEED FOR A THEME

Agreeing now on a theme acceptable to all the partners starts the momentum of the organization moving in a direction beneficial to the long-term interests of the Park. This means that when decisions arise in the future they can be analyzed in the face of the theme. Also, when a group develops an interest in the Park they know what they must do to keep the project alive; that is maintaining the theme.

For the theme to work properly it must reach to a level above materialism and commerce, and needs to incorporate the best elements and uses of The Islands but still allow for the development of The Islands into the future.

4.0 CURRENT SITUATION

Right now the park is in a state of flux. The thirteen member partnership struggles every day to allocate responsibilities and duties. The transition from the state run system to the new partnership arrangement proves itself delicate at nearly every turn. The current status of the park can be broken down into three elements, the management, The Islands and the ferries.

The management structure, unique for a park of this kind, raises political issues and challenges that many parks circumvent with national control. Some of the current issues are detailed below to help give a more complete picture of the status of the park.

The Islands that are available for use vary depending on the status of the dock repairs on each island. Below is a list of the islands available this past season with some additional information on their status.

The current ferry situation has the most direct bearing on this paper and its conclusions, and shows the need for changes. The existing operator provides adequate service given the limitations set

on their shoulders. The hope is that many of the shortcomings of the current system can be rectified in the new system.

4.1 MANAGEMENT

Boston Redevelopment Authority: (BRA)

Headed by Thomas O'Brien, the BRA controls the zoning regulations for the city and is embroiled in a controversy over the development plan for the seaport district of South Boston. All building has been halted because of a temporary moratorium on taller buildings (those over 300 feet). Such buildings were the heart of the developer's concept for the new port and the moratorium puts a wrench into the situation. Because the seaport and its environs were to be one of the gateways to the new park, the BRA holds power over the look and feel and connectivity of the mainland.

City of Boston: (BOS)

Mayor Menino portrays himself as a proponent of the park and its growth and use. The city of Boston, however, controls the only island other than Deer to have a mainland connection. The two islands, Moon and Long are connected to the Squantum peninsula via bridges. These two islands house social services and other activities that Boston would have difficulty relocating. This makes the city a potentially adversarial partner.

Island Alliance: (IA)

Kathy Abbot and her board are in the delicate position of being the logical choice to funnel money and control of The Islands, but too small and lacking influence to pressure the partnership for any of that money or control. Instead they must labor behind the scenes and apply what little pressure they can to point the partnership in the right direction. The IA makes the most logical choice because they hold no special interest in any particular island or previous method of operation. Only Massport and the IA find themselves without a property interest in this park and so are somewhat excluded from discussions that start, "well we used to manage _____ Island this way and..."

Massachusetts Department of Environmental Management: (DEM)

DEM has managed several islands in the past, including several of the most popular, like Peddock's Island. DEM also issues the contracts for the ferry operation through Diane Haynes's office. Their control of the contracts will stand for at least the next contract. Many of the aspects of this paper are directed at DEM and Diane Haynes, for they and she can have the greatest impact on the future of operations.

Massachusetts Port Authority: (Massport)

Massport, like the Island Alliance does not bring any property to the table, however Massport does offer tremendous experience and control over the transportation and waterways in Boston Harbor. Massport also owns substantial property near the park in South Boston in the new seaport district and finds itself in the midst of the BRA's controversial moratorium. Jim Doolan and Andrew Hargens admitted that the author's services were provided to the National Park Service as Massport's way of contributing to the process. In that way this document is part of their contribution to the park.

Massachusetts Water Resources Authority: (MWRA)

The MWRA manages the most visible element of the park, the massive digester "eggs" on Deer Island. Their wastewater treatment facility echoes the frequent use of the islands as garbage repository. Fortunately this latest incarnation is significantly more benign.

Metropolitan District Commission: (MDC)

The MDC operates George's Island, the current hub and the most visited island in the park. MDC rangers provided the estimates of capacity used in the model described below in detail. MDC and DEM formed the backbone of the park from its days as a state run operation.

National Park Service: (NPS)

Usually seen as the giant in the park the NPS is actually just a small player in this game, but faces the same issues that they would face if they were not just one of many partners. George Price, fresh from his tour leading the NPS site in Lowell, has done a masterful job of whipping up interest and cash for the park. However, he suffers from the significant debilitation that the NPS scale of time

and preparation is on the order of decades and this park, its partners and their business associates think on the order of months, maybe years. This dichotomy puts George Price and his staff in the awkward position of playing the short game and the long game at the same time.

Thompson Island Outward Bound Education Center: (TIOBEC)

Thompson Island is the only privately held island in the park. This means that the financial difficulties facing Thompson pose significant threat to the park as a whole. Because the original legislation stripped the park of its ability to buy land there was great concern that the park would be unable to buy out Thompson Island. TIOBEC decided to sell their development rights as a way of resurrecting the failing infrastructure and providing for the future.

The Trustees of Reservations: (TTOR)

TTOR deals with the land locked parcel known as World's End. Like Deer it is attached to the mainland near Quincy, but it was never an independent island at any time. Also the TTOR must deal with the isolationists who view World's End as the South Shore's private park. There is every reason to believe that World's End will become a stop on some ferry system so that park goers may have the option of visiting that resource on their visit to The Islands. Unfortunately that connection may take a very long time, and until then World's End seems a world apart from the park.

United States Coast Guard: (USCG)

The USCG mans and manages Boston Light. They form the second prong of the Federal Government in this partnership. The wildcard here is the question of their contribution. As will become clear, the Federal contribution balances other contributions 1 to 3, so when the Coast Guard invests \$3 million in a new pier, does that preclude a Federal contribution for many years to come? That question remains unanswered.

Two of the 13 seats are vacant and will be filled by members of the Advisory Council, who are made up of interested citizens groups and island supporters. These two seats truly belong to the people of Boston and are their best hope for a voice in the development of the park system.

4.2 ISLANDS

The Islands open to the public in 1998, according to the Boston Harbor Islands website, were:

(note that several islands require previous arrangements)

“George’s Island is the site of historic Fort Warren, where guided tours and a slide show are offered. The island has a parade ground, trails, picnic areas, paved walkways and the only snack bar in the park. George’s forms the hub of the current system and becomes the site of major logjams on summer evenings when visitors decide to wait for the last boats to leave.

“Gallops Island has picnic grounds, a swimming beach, hiking paths and spectacular views of Boston and the open sea. The island boasts a very large rabbit population!

“Lovell’s Island, a favorite camping island, has trails that pass by dunes and woods, picnic area, the remains of Fort Standish and a swimming beach.

“Peddock’s Island, one of the largest and most diverse of the islands, holds the remains of Fort Andrews, trails around a pond and salt marsh and picnic and camping areas.

“Bumpkin Island offers native raspberries and the fragrant smell of bayberries, as well as trails around the ruins of a stone farmhouse and children’s hospital. Picnic and camping sites are available.

“Grape Island is a haven for wildlife. Hike the trails to enjoy the wild berries and rose hips that proliferate on the island, providing food for a variety of birds. Grape also has campsites and picnic area.

“Deer Island is the site of the new primary sewage treatment plant that is responsible for the vastly cleaned up water in the Boston Harbor. Tours of the plant, with its "egg" digesters are available with a call to the Massachusetts Water Resources Authority.

“Thompson’s Island is a beautiful island with historic buildings and bucolic rolling hills. It is privately owned by the Thompson Island Outward Bound Education Center; tours and conference facilities are available.

“Other islands accessible by private boat include *Little Brewster* (on arranged tours), *Great Brewster*, *Calf*, *Rainsford*, and the four small islands in Hingham harbor.” (<http://www.nps.gov/boha/>)

Missing, of course are *Spectacle* and *Long*. These two islands are the closest to Boston and the longest respectively. *Spectacle* is the disposal site for much of the Central Artery/Tunnel project excess earth. As part of the arrangement, the CAT project will build a pier and visitor center on *Spectacle*.

Long is owned by the City of Boston and contains an old fort and hospital buildings. These facilities are used to house homeless people who are bussed from the city in the evening and back again in the morning. The causeway that connects *Long* to the mainland runs over *Moon Island* where the Boston Police firing range is set up. Naturally people have some concern over the firing of weapons in a National Park where visitors might inadvertently stray into the line of fire. Even if *Long Island* were opened to the public there would be little chance of people straying onto *Moon*.

In any case these later two island may not become part of the park for some time. Were *Spectacle* will be the first island to receive a major facelift as part of the new park.

4.3 FERRIES

The existing system of priced passage to the hub from the mainland gateways (like Long Warf) and free passage to all other destinations works well now and will serve the new Park as well. This author believes that as the number of visitors grows, the contracting system for the Park should change. Currently the free ferries must be provided by the ferry company who wins the contract. The winner has sole rights to ferry passengers to The Islands. With the current level of interest in The Islands this is appropriate. There are some days when only one or two people want to go out to The

Islands and the contracted operator must run ferries on a prearranged schedule. If the ferry system were changed to a competitive one too soon, passengers like those few potential visitors might be left to wait until their number increased.

Today visitors reach The Islands by ferry either from Long Warf in Boston or from Quincy and Hingham on the South Shore. They travel between those stops on the mainland and George's Island. From there an inter-island shuttle makes the rounds of the other landings among The Islands. The ferries are run by Boston Harbor Cruises whose contract gives them exclusive rights to transport passengers to The Islands and requires them to meet the schedule trips outlined below for both the mainland ferries and the inter-island shuttle:

Mainland ferries leave Long Warf every hour on the hour from 10am to 5pm during mid-season (June 21 – September 1). For that part of the season the Shuttle, starting in Lynn, travels from George's to Gallops to Lovell's, taking 15 minutes between islands and ½ hour to start the cycle over again at George's. There is also a Southern Shuttle that starts in Hingham and then rotates through Grape, Bumpkin, Peddock's and George's. These trips vary from 20 to 25 minutes. Each of these Shuttles runs from 10am to 5:45pm.

The shoulder season (May 3 – June 20 and weekends in September and the first half of October) has its own limited schedule that is similar to the one above except the mainland ferries only run every two hours and the Southern Shuttle stops running. Both operate from 10am to 2pm, except weekends when they run until 4pm.

5.0 RESEARCH THEORY

This model started as a working tool for the people of the BHINPA, principally George Price's staff. Originally titled Cost Estimate the model was designed to serve as a central location to keep track of revenues and expenses from all the partners. Each one of those partners has responsibility for many properties other than just the Boston Harbor Island or two they originally managed. According to Diane Haynes and George Price, the agencies find it difficult to separate their accounts and would never be able to coordinate their programs in such a way to allow The Park to plan into the future.

The author thought a good solution would be to develop a cost estimating program that would allow for interactive forecasting and sensitivity analysis. Development of the model started in Assistant Professor Miller's research group with the CHOICES model for infrastructure delivery developed jointly by John Miller and Roger Evje. CHOICES used, in the spring of 1998, the Microsoft Excel base to link several different files together. The different files allowed the user to

look at a number of different projects to be completed in the future and several different methods of delivering those projects (eg. The water treatment plant could be paid for by bonds and taxes, or could be privatized and paid for by user fees). CHOICES allowed the user to switch between the different delivery methods and add the total cash flow for all the projects to create a total cash flow diagram.

The benefit of this concept lies in its tremendous flexibility. Not only can the user choose to do a project or not (line a sewer, for example), but they could also choose to delay the project for several quarter (putting off the new school, for example). Combining that flexibility with the ability to choose different delivery methods for each project allows the user to generate many total cash flows. Comparing those cash flows will show the optimum means of taking on multiple projects for the minimum annual cash outflow.

The parts of the program that seemed most appropriate to the BHINPA problem were:

- The “Chooser”, a single sheet where the user can switch between several controlling options.
- The cash flow into the future. The future of The Park will be better served by effective planning for the future.

The disadvantages of CHOICES were:

- It's focus on infrastructure.
- The complexity of its user interface.

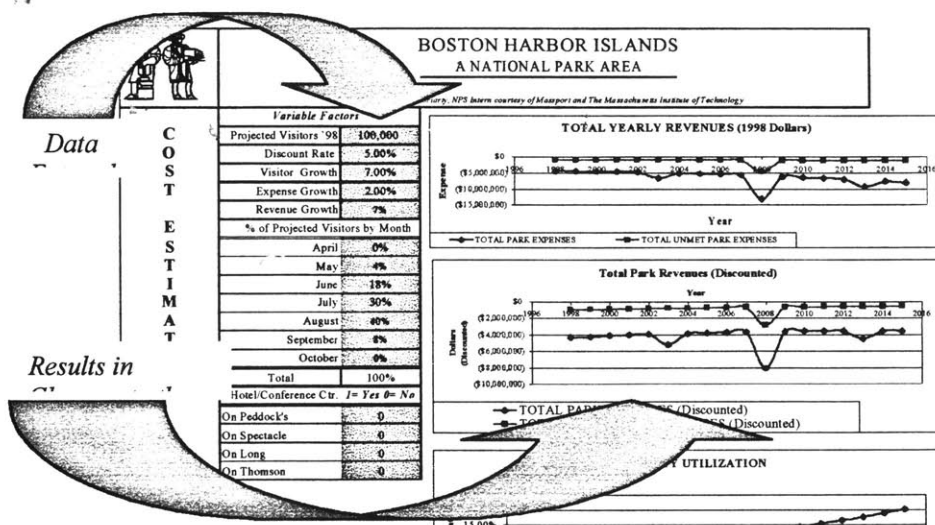
The available options were to reprogram CHOICES to fit the needs of the NPS and BOHA, or generate an new model customized to the problems and desires of the NPS and BOHA. The author chose the latter for several reasons. First, the author believed that his work with the NPS would be limited to one semester, and that would not be enough time to learn the inner workings of CHOICES and alter them to suit the BOHA situation. Second, George Price desired help with an initial project that would eventually take one quarter of the author's available time. Third, the author's goal of

creating a user friendly model would have meant serious design changes to the CHOICES interface, practically rebuilding it from the ground up.

The combination of these reasons pushed the author to develop his own model. The basic goals of the model centered on delivering a useful product, to that end the model needed to:

- Be easy to use.
- Allow for maximum flexibility.
- Deliver useful information in an easy to understand format.

The first and third goals drove the decision to use the “Control Panels” sheet idea developed by the author. By estimating the variables most likely to change when performing sensitivity analysis, and linking them all to the first sheet, shown below, the “Control Panel” allows the user to



change one or two cells and then watch the graphs for the results of those changes.

Essentially the model rests on the following basic theory:

Visitor growth drives expense.

The model was developed under this premise through two generations. At that point it became clear that if that theory is correct then the important question is:

“What drives visitor growth?” Sensitivity analysis using the “Island Capacity” section of the model generated the conclusions and views outlined below in the chapters on **Mature Park** and **Transition**.

During development, two separate, but related factors were modeled. At the outset, the author understood, from George Price and others, that the capacity of The Islands was an important issue. Also a controversial issue that divided many members of the partnership from each other and from user groups interested in protecting the natural surroundings from over-use.

The author reasoned that since many of the expenses on The Islands were directly proportional to the number of visitors, the model should allow the user to change the number of projected visitors and see the impact of that change on expenses and revenues. That is the genesis of the “Projected Visitors `98” cell on the “Control Panels” sheet.

The author did not want the user to be able to input an unrealistically high number for visitors, or let a high value in the factor “Visitor Growth” push the number of visitors beyond the possible. This meant that the model needed to include an estimate of the capacity of the islands. The Island Capacity section was based on the theory that the number of visitors was limited, in a final sense, by the geological capacity of the islands. That capacity measurement (each Island’s geological maximum: determination below) became the primary reference cell in the “Capacity” section of each Island’s worksheet.

George Price of the NPS states that geological capacity is measured in other parks by soil compaction rates. While soil compaction is appropriate for the “Crown Jewels” like Yellowstone, where the trails and paths are not engineered roadways, on BOHA many of The Islands’ primary walking surfaces were engineered for troop movement and parade (informal interview with G. Price of the NPS) (National Park Service 1994). It stands to reason that the soil under these pathways on The Islands are at or near maximum compaction today. The author surmises that additional use will not manifest itself as further compaction of the soil. That leaves BOHA to estimate the capacity they way they have for the last twenty years. According to George Price of the NPS, Diane Haynes of the

DEM and Ranger Thom Duggan of the MDC, the only method of measuring capacity used on The Islands was and is educated guesswork.

After geological capacity followed the other controlling factors (in no particular order): length of stay; frequency and size of ferry traffic; length of season; and length of useful day. The theory underlying the use of these other factors was as follows:

The author assumed, for purposes of estimating maximum capacity, that the ferries would travel to and from The Islands with full loads of passengers. While this is not the case in actual use, it is appropriate for the purposes of modeling the extremes of use. Under that assumption are the further assumptions that The Islands can attract enough people to fill the ferries and that each Island can provide facilities to those people once they arrive.

Given those assumptions the other controlling factors work under the following theory:

People will arrive steadily in the morning, at the instant they arrive they start an internal clock that expires when the “Average Length of Stay” is reached. At that time they will board a ferry and return home. The ferries will continue to bring people until one of two things happens: the Island reaches its geological capacity or the day reaches the midway point.

If the Island reaches capacity then the ferries are assumed to wait until the first arrivals want to leave (based on the Average Length of Stay) or the Island needs to begin emptying, whichever is sooner. Emptying must start at such a time as will allow the Island to be empty at the end of the useful day. The mathematical relationship between factors is outlined in detail in chapter 6.0 on the **Boston Harbor Islands Model**.

Once the capacity for each Island was calculated, that value formed the ceiling for visitation. As long as the individual Islands did not exceed the geological maximum estimated by the DEM and MDC, the other factors (length of stay, ferry capacity and frequency, etc.) controlled the capacity of The Islands.

5.1 COST ESTIMATION

MIT coursework followed by the author, taught by visiting professor Ibbs from the University of California at Berkeley, outlined the most important elements of creating an accurate cost estimate. That theory created the framework on which Cost Estimate was built.

5.1.1 THEORY

The basic theory espouses a divide-and-conquer strategy. The project should be broken down into the smallest component parts possible. From there the components can be grouped based on their controlling factors and the level of division. For example all the components of one segment of a project are grouped together. Within that grouping the individual components can be subdivided into groupings that rely on labor, or materials or timeliness of completion. The concept of dividing the project into small components allows the manager to identify risks and cost drivers more accurately.

Once those risks and drivers are identified they may be better controlled. In an effort to help the Park identify and manage its cost drivers, the model breaks down the Park by island and then into operations & maintenance, infrastructure & development and miscellaneous. The model provides areas to enter revenues and expenses. It also allows the user to identify the source of the funding so the total of contributions can be broken down into groups. Those groupings, explained below in 6.4 **Fund Distribution**, may help the Park keep track of the potential federal match.

5.2 SUMMARY

The goal of the model is, essentially to act as an empty tool into which the user places data that the model manipulates. The theories that the model was based on were, in order of conceptualization:

- Visitors drive expenses and revenues.
- The upper limit of Island capacity hinges on the geological capacity of the Island.

- If Island use falls below the geological capacity then the following concepts form the limits of capacity:
 - Ferry size and frequency of service controls flow.
 - Average length of stay restricts flow as length of stay increases.
 - Length of season simply stretches the curve of visitation over the year without altering capacity of the individual Island.

The author designed the model to be used primarily as a fund-raising tool. By outlining the expenses of the park the NPS or IA personnel may show what funding is required to meet the park's costs. By showing those costs into the future BOHA can generate fund drives much the way schools do.

George Price viewed the model as useful for fund raising but also for valuing the contributions of volunteers for purposes of the potential match, because at the moment, donations in kind are not accounted for in the calculation of the potential match.

The model has the flexibility to detail expenses down to the smallest detail, but the intention of the author was to perform some initial grouping into categories and then enter the total expense of the category. In this way, hopefully, the data can be pulled from the source in as un-altered a state as possible. This means that the model was designed to work on the macro level, but can be scaled down to the micro level if needed.

6.0 BOSTON HARBOR ISLANDS MODEL

As part of the research work the author performed for Massport and the National Park Service, he created a computer model based on the Microsoft Excel spreadsheet program. The original purpose of the model was to track expenses and revenues for the new Boston Harbor Islands National Park Area (BOHA). The factors of particular importance to the National Park Service's George Price were, the sources of funding and their relation to the potential match by the Department of the Interior.

The legislation that created BOHA deprived the Park of two very important abilities that most other parks enjoy, the ability to take a predictable draw from the National Budget and the ability to acquire land. The lack of these two factors dramatically changes the management style of the Park.

The model uses Excel's cell-linking formulas to create a means to estimate the costs incurred by the Park, who paid, and what match the Park is eligible for. In an effort to make the model more

user friendly, the program is set up to allow changes to the most fundamental variables in one place. The results of those changes are then displayed in the same area.

To generate even this complex a model many assumptions need to be made. In this case the assumptions start with the viability of the source of data and the general future of the Park and move onto more detailed estimates of individual island capacity, average time spent on an island, ferry size and frequency, length of season and other variables outlined below.

The assumptions led to a calculation of the capacity of the entire Park system of islands. Using the capacity of the system as a baseline, the model asks for an estimate of the number of visitors in 1998 and several growth factors. From there the model generates the costs associated with operating the Park based on the assumptions and the number of visitors expected for each month.

The costs for operating the system are based on estimates and further assumptions generated from conversations with MDC Ranger Thom Duggan. By basing the variable costs on the number of visitors, the model can generate cost estimates as the visitorship increases over time. Because the monies used to cover those expenses are eligible for matching funds from the Department of the Interior Budget, they are broken down individually by the partner who contributed. The model then sums the contributions and calculates the potential federal match.

6.1 ASSUMPTIONS

The model assumes several things. First, it assumes that the Park desires a high growth profile and that development will draw visitors out and their flow will be controlled by the ferry system. The fundamental limit on how many people can visit The Islands rests on The Islands themselves. The model assumes that the capacity of each of The Islands can be known and that capacity is stable. Admittedly, this is not accurate as capacity decreases with abuse and increases with careful maintenance, but since the actual number is so nebulous the variation caused by those factors lie well within the uncertainty of the number itself.

For the financial sections, the assumptions run to the more practical: taxes were not included; nor were financing costs and interest. The primary assumption as regards the distribution of funds was the yearly nature of the match. As it stands now the Park Service is attempting to convince the Department of the Interior that funds eligible for match should be spread over several years to take advantage of large spending blocks by the partnership.

6.1.1 PARK CAPACITY

The essential estimate made by the model is the capacity of the Park as a whole. To arrive at such an estimate requires some baseline assumptions. For the purposes of this model it was assumed that the instantaneous capacity of each individual island is fixed.

Instantaneous Capacity – “The maximum number of persons that an island can accommodate at one time”

Therefore, if the instantaneous capacity of George’s Island is 3,000 people, that means that no more than 3,000 people can be on George’s at once. However, if the island fills up quickly and the people who arrive early in the day leave before the day is over then additional people may arrive to take their place. In essence, the max daily capacity of an island is a

C A P A C I T Y	Maximum # of People on Island at One Time		
	3000		
	Ave. Ferry Capacity	45	People
	Ave. Length of Stay	3	Hours
	Filling the island takes	67	Boatloads of People
	The useful day is	8	Hours long
	Boats can arrive every	1/2	Hour
	Hours to Fill Island	33	Hours
	Island at Max Capacity for	0	Hours
	Ave. # of Visitors during filling/emptying	360	Visitors
	Max. Daily Capacity	720	Visitors
	Park Daily Capacity	11,120	Visitors
	This Island's Cap. as % of total Park Cap.	6.47%	
	George's Island		
		Projected Visitors	Actual Visitors
YEAR MONTH	Year 1	6,475	6,475
	Year 5	9,081	9,081
	Year 10	12,737	12,737
	Camping Allowed?	no	

function of the *instantaneous capacity*, the *average length of stay*, the *useful length of day*, the *frequency of ferry arrival and departure* and the *average ferry capacity*.

Each of the factors connects to the *daily Park capacity* in many ways, for example the *Maximum Daily Capacity* of the Park is a long “IF” statement that relates many of the factors from the spreadsheet above.

Max Daily Capacity (MDC) is determined by the relationship:

IF Average length of Stay is less than the # of Hours to Fill the Island, then MDC is equal to the # of Hours the Island is full divided by the Frequency of Boat Arrival times the average Ferry Capacity plus the average # of Visitors during Filling and Emptying Plus the average Ferry Capacity times the ratio of half the Useful Length of Day to the average Length of Stay. IF NOT then MDC is the average # of Visitors during Filling and Emptying, plus, the # of Hours the Island is full less the average Length of Stay plus the # of Hours to Fill the Island all divided by the frequency of Ferry Arrival times average Ferry Capacity.

This formula makes several simplifying assumptions. First is that visitors leaving before the island is full do not appreciably lengthen the time it takes to fill the island. Second is that people leave the island the way they arrived, that is progressively. These assumptions do not reflect the potential reality, but approximate the average situation. According to Ranger Thom Duggan, there are many popular days, like warm summer weekends, when people wait until the last boat or two to leave The Islands. If there were hard numbers for that attendance phenomena it would make a steeply logarithmic curve of visitor attendance on the island at the end of the day.

I have modeled that possible curve with a straighter line (an estimated average) in an effort to simplify the daily attendance estimate. The model assumes that people will arrive on the island right up until the ferries being to empty the island for the night, and will leave at the moment they have stayed for the allotted duration. It would be more accurate to model the daily attendance as a bell curve skewed to the right, where more people arrive in the mid-morning than at any other time, but then stay generally longer into the evening. The actual attendance, according to anecdotal evidence, is lighter in the morning and heavier in the evening. The author assumes that a pure average spread

across the day, with a linear ramp up in the morning and a linear ramp down in the evening is a reasonable approximation for this bell curve.

The model allows the user to change the length of season on the “control panel” sheet. This series of percentages spread the anticipated visitors over the season according to the chosen percentage per month. This allows the user to generate a bell curve for attendance for the starting year.

The underlying assumption is that the curvature of Park attendance affects the data far more than the curvature of daily island attendance, or even weekly cycles. While there exist no numbers to prove this assumption, the author presumes that, as long as the overall cycle is represented across the season, individual daily and weekly variance can be treated as short periods of average value.

The same principal applies to digital reproduction of music. Analog music is “high fidelity”, which means that every bump and curve of the pressure wave is expressed in the recording (or model if you will). Digital recording breaks the pressure wave into very small discrete steps that the listener can not hear because they only respond to the gross pattern. This model of the BOHA Park assumes that daily and weekly variation in visitor levels are the same as an average daily and weekly attendance as long as the average increases the same way reality does over the course of the season as a whole.

6.1.2 DEVELOPMENT DRAWS VISITORS

If The Islands themselves form the final limit as to the number of people who can visit the Park, then there needs to be a reason for all those people to go out there in the first place. The model assumes that development of The Islands will proceed slightly ahead of the visitor wave. Because the model assumes a varying level of interest as the season progresses, it by definition assumes that when the high season arrives that there will be enough interest to attract the large number of visitors allowed by the capacity of the system.

The Park is at a crossroads as far as usage is concerned. There are those who feel that the Park is a precious resource that should be preserved and massive visitation is to be discouraged. Others feel that as long as the health of The Islands is kept at the top of the agenda, the Park should encourage as many people as possible to visit.

On this issue the author weighs in on the side of the latter argument. It will be better for the Park in the long run to attract too many visitors and have to turn people away than to let the Park exist the way it has for the last 20 years as a secret treasure known only to a few and enjoyed by even fewer. The added interest and attention will bring much needed capital to preserve The Islands and make them available to less fortunate members of the community. If The Islands are over-protected from people then the lack of use may cause the other man-made treasures to fall into disrepair like the buildings of Fort Andrews on Peddock's Island (building assessment from interviews with MDC Ranger Thom Duggan the NPS's George Price).

The complete concept for development is outlined in greater detail in the section 8.0 **Mature Park**.

6.1.3 FLOW CONTROL BY FERRY

The model goes on to assume that the number of visitors depends on the capacity of the ferry system serving The Islands. This is the closest assumption to actual reality. As the numbers exist in the model now, the capacity of The Islands, from a geological and resource-preservation standpoint, is much higher than can be reached with the existing ferry system. Even if the number of visitors exceeded 1,000,000 per year the Park would still be within its calculated capacity. It follows directly that the number of visitors would be directly dependent on the size and frequency of the ferries serving the Park.

The entire flow control concept is dealt with in far greater detail below in the **Mature Park** section, but the essence of the system is this:

Visitors reach the Park by ferries of a moderate to large size operating from gateways on the mainland. These ferries ply the waters of Boston Harbor to the largest of The Islands, Spectacle and Peddock's, called "Hubs". From these Hub islands, visitors may visit any other island using a smaller ferry called the "Shuttle". The model allows the user to input the size of the ferry serving the island of interest and how often that ferry arrives. For the larger islands the large ferry is listed in the model and the smaller ferry is ignored under the assumption that as many visitors will transfer off of the island by small shuttle ferry as on to the island.

The model calculates the capacity of the individual islands based on the size of the ferries and how frequently they visit each island. For example:

Assume each ferry carries 150 people and is traveling to George's Island every half-hour. The day is eight hours long and passengers want to stay for four hours at a time. If we assume that the ferries are full from the first ferry to the last of the day, then 150 people arrive on George's every half-hour. That gives 300 per hour or 1,200 in four hours. At mid-day the first 150 are ready to go home so they board a ferry and are the first to leave, and on that noon boat are the last 150 to come to George's. From that moment on every ferry that arrives is empty and takes home 150 people. So the total on George's is $1,200 + \text{one ferry turnover of } 150 = 1,350$. The model assumes that Peddock's and Spectacle have the same ferry service and instantaneous capacity. The other islands are assumed to be served by a 30-passenger ferry every 15 minutes. Using these numbers the capacity of the Park over the course of the season is 755,000 visitors. Adding ferry capacity adds visitor capacity up to the limits of each individual island. In this example, ferry service could triple in volume and still be within the conservative limits set on the islands.

Just as an example, if the ferry capacity of the largest islands, not including Long Island, were increased to 300 passengers the overall capacity of the Park would increase to 1,358,000 per season. At this level of visitorship the individual islands still average less than 2,640 visitors at maximum visitation. This just goes to show that the limiting factor is ferry service.

6.1.4 INSTANTANEOUS ISLAND CAPACITY ESTIMATES

Park Ranger Thom Duggan of the MDC in an interview with the author estimated that the current instantaneous capacity of George's Island is 3,000 visitors, but they were thinking of raising it to 5,000. Given that information the model uses a baseline as follows:

Island	Est. Instant. Capacity	Cap. W/150 pass.	Cap. W/300 pass.
George's	5,000	1,350	2,640
Peddock's	5,000	1,350	2,640
Spectacle	5,000	1,350	2,640
Long	0	0	0
Deer	200	200	200

As stated previously the actual capacity of the Park at any one time is more related to the ferry system than to the instantaneous capacity numbers. For example, on George's, Spectacle and Peddock's the model uses 150 passenger ferries arriving at ½ hour intervals, dropping off passengers who stay an average of four hours. Using those numbers each island can hold 1,350 visitors per day, if the ferries are full. The model goes on to assume that in the early season the ferries are no where near full and get fuller as the height of the season approaches.

All this results in far less usage than the "capacity" numbers indicate. The Capacities serve as markers as to the ceiling of visitation, not the actual visitation itself. Actual visitation will be lower by definition because ferries of that capacity will never be full early in the season.

6.2 INSTRUCTIONS FOR USE

The model, called Cost Estimate, was created to assist the Partnership for the Boston Harbor Islands National Park Area in projecting and allocating sources and uses of funds. The program allows the user to input data about The Islands and see those data sorted and regrouped into graphical

and numerical format. The program is based on the Microsoft Excel application and uses basic spreadsheet functions to project revenues and expenses out into the next 10 years.

The data are entered in green highlighted cells with labels like “Projected Visitors”, and “Expense Growth Rate”. Due to memory limitations, and in the interest of speed, only the most prominent islands in the Park have a single worksheet dedicated to their data; a single sheet represents all the other islands.

As with any computer tool, the value of the information extracted depends on the accuracy of the data entered. The data included in this model is based on conversations with the Metropolitan District Commission Ranger Thom Duggan, who provided the data for George’s Island. Data for Peddock’s, Long and Spectacle are based on the programmer’s assumption that those islands will be similar in capacity and personnel requirements to George’s Island.

Because of the large volume of interconnected data fields, changing one piece of information forces the computer to recalculate all of the cells. This can take some time depending on the speed of the machine involved. Similarly, because of the size of the program, it takes some time to load and become operational.

Use of this program assumes familiarity with Microsoft Excel or basic knowledge of spreadsheet applications. If you have any questions regarding the use or operation of this program please feel free to utilize the contacts listed at the end of this document.

6.2.1 GETTING STARTED

- Start Microsoft Excel '97 (or higher).
- Open Cost Estimate from the appropriate folder.
- Using the tabs at the bottom of the screen labeled with each island’s name, look at the data entered in each island sheet in the green colored cells, and check the data for accuracy.
- Go to the sheet labeled “Control Panels” and check the data in the green colored cells for accuracy.

- Change any of the green colored cells and watch the changes to the graphs in the Control Panels sheet.

6.2.2 USEFUL FEATURES

- In the Control Panels sheet, contributions to the Park are broken down by Partner.
- The capacity of the Park as a whole can be adjusted by changing the length of the season on the Control Panels sheet (where each month has a percentage of projected visitors listed), or by changing the Maximum Daily capacity of each island individually. Also, each individual island can be adjusted by changing the ferry schedule and capacity.
- The potential federal match is calculated based on the contributions made by the various partners. That match is shown on the right side of the Control Panels sheet at the top.

6.2.3 IMPORTANT POINTS

This program is based around two numbers:

1. Projected Visitors '98, found on the Control Panels sheet.
2. Maximum # of People on Island at One Time, found on each island sheet.

Many of the costs modeled in this program are based on the number of visitors in a particular month; seasonal personnel, for example, are a function of the number of visitors. The number of visitors that the model assigns to a particular island is determined by the capacity of that particular island. The island's capacity is based on the Maximum # of People on Island at One Time value. In short, the Projected Visitors value determines the number of people and the Maximum # of People on Island at One Time value determines how those people are allocated to each island.

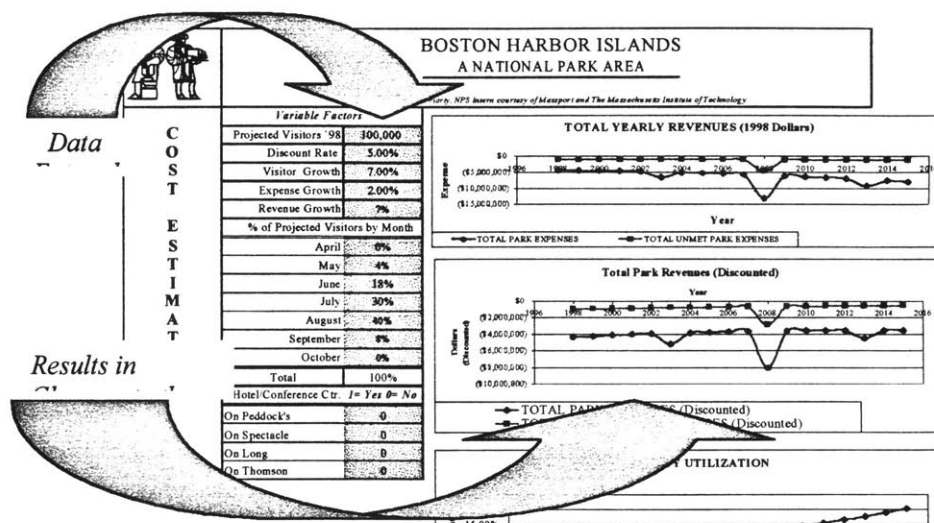
6.2.4 HOW DOES IT WORK

Cost Estimate, like every spreadsheet, takes data entered in the control cells and performs mathematical operations on those values based on the formulas entered in the cells. In this case, the values entered in the control cells are numbers related to visitors or percentages related to growth or distribution of visitors over time.

The sheets all have the same basic layout. The control cells are highlighted in green, and appear in the upper left corner of the worksheet. If you scroll throughout the worksheet you will find the workspaces for every month and year for the modeled period.

For simplicity, all the green cells are on the left-hand side of the worksheet. This means that the vertical scrollbar allows easy access to all the relevant cells.

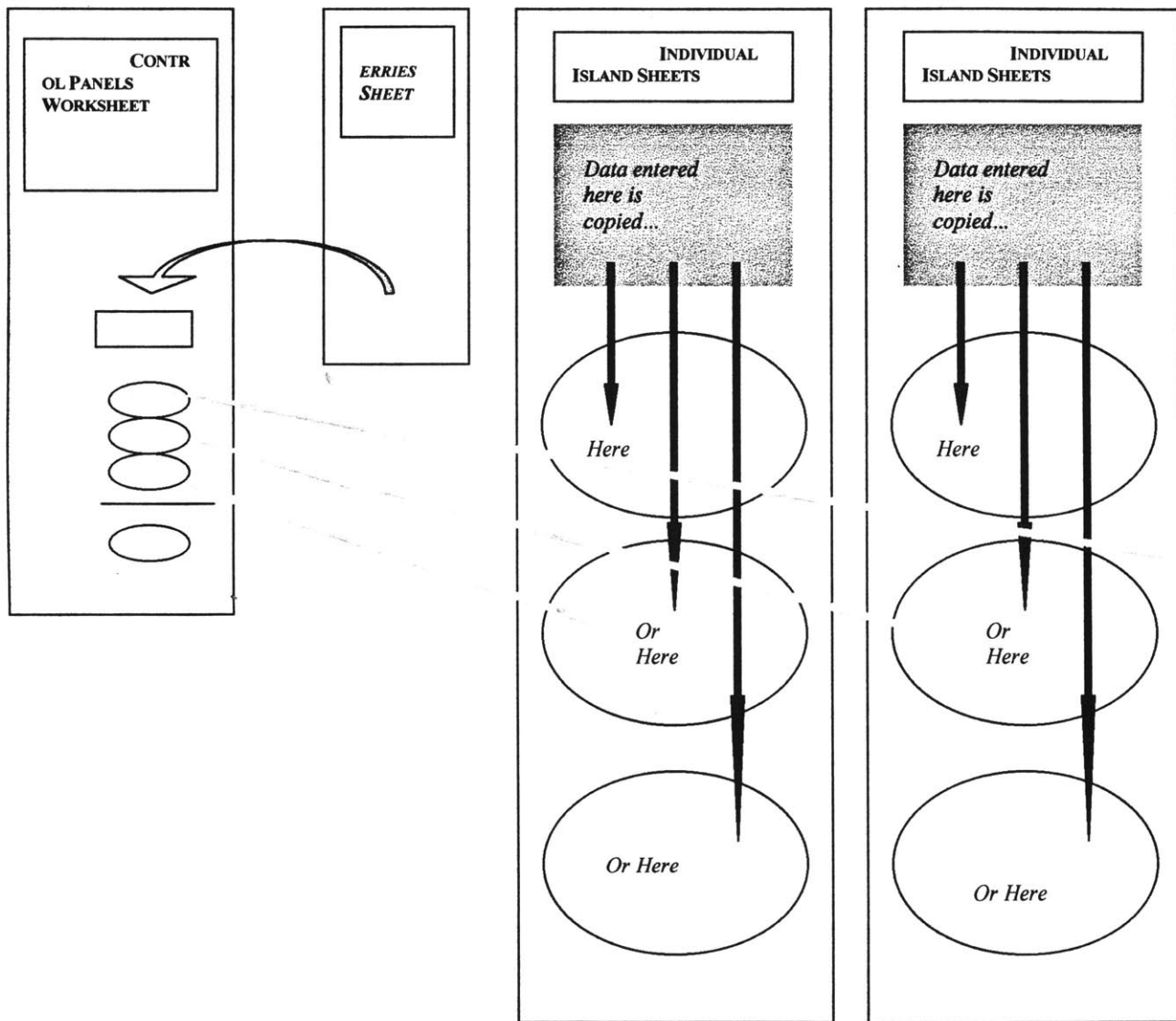
Here is a copy of the “Control Panels” worksheet. As you can see the green cells are on the left and, in the case of the “Control Panels” worksheet, there are graphical representations of the data next to those cells to allow for easy sensitivity analysis.



6.2.5 OVERALL ORGANIZATION

The program is made up of eight different sheets:

1. Control Panels – contains Park-wide data and displays final calculations and graphs.
2. Ferries – contains data related to the ferries and potential revenues and expenses.
3. George's Island.
4. Peddock's Island.
5. Spectacle Island.
6. Long Island.
7. Deer Island.
8. Other Islands.



In each of the Individual Island Sheets data entered in the green cells is copied to a particular transfer area depending on which Partner provides the funds. As you can see below, the green cells in the individual island sheets are divided into sections by thick horizontal black lines. The areas are extra revenues and expenses, capacity, personnel and infrastructure. In the case of any expense or revenue, each line item can be attributed to a particular Partner by listing the Partner, by symbol, in the last column of green cells as shown below.

Daily Park Capacity (as a % of total Park capacity), combined with projected park visitors gives the number of projected visitors for that island every month.

C A P A C I T Y	Maximum # of People on Island at One Time																																																																								
	5000																																																																								
	Ave. Ferry Capacity			500 People																																																																					
	Ave. Length of Stay			3 Hours																																																																					
	Filling the island takes			6 Boatloads of People																																																																					
	The useful day is			8 Hours long																																																																					
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	Island at Max Capacity for			0 Hours																																																																					
	Ave. # of Visitors during filling/emptying			2,000 Visitors																																																																					
I S L A N D C A P A C I T Y	Max. Daily Capacity			4,000 Visitors																																																																					
	Park Daily Capacity			10,400 Visitors																																																																					
	This Island's Cap. as % of total Park Cap.			38.46%																																																																					
	George's Island			Projected Visitors	Actual Visitors																																																																				
	Year 1			38,462	38,462																																																																				
	Year 5			53,944	53,944																																																																				
	Year 10			75,660	75,660																																																																				
	Camping Allowed?			No																																																																					
	YEAR			1998																																																																					
	MONTH			JANUARY FEBRUARY MARCH																																																																					
<table border="1"> <tr> <th colspan="3">Assumptions Regarding Personnel</th> <th>Expected Overtime</th> </tr> <tr> <th></th> <th># per 1000 Visitors per day</th> <th>\$ per Month</th> <th>20%</th> </tr> <tr> <td>Seasonal Personnel</td> <td>10</td> <td>\$1,612.00</td> <td>\$322.40</td> </tr> <tr> <td>Full Time Rangers</td> <td>2</td> <td>\$2,500.00</td> <td>\$500.00</td> </tr> <tr> <td>Supervising Rangers</td> <td>0.05</td> <td>\$3,300.00</td> <td>\$660.00</td> </tr> <tr> <td>Operations Staff</td> <td>0.01</td> <td>\$2,500.00</td> <td>\$500.00</td> </tr> </table>								Assumptions Regarding Personnel			Expected Overtime		# per 1000 Visitors per day	\$ per Month	20%	Seasonal Personnel	10	\$1,612.00	\$322.40	Full Time Rangers	2	\$2,500.00	\$500.00	Supervising Rangers	0.05	\$3,300.00	\$660.00	Operations Staff	0.01	\$2,500.00	\$500.00																																										
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Assumptions Regarding Infrastructure																																																																									

"If" statements in the cells allow only particular partner to be copied down into the pointed out by the light orange arrow show that the MDC. This means that these expenses will be

those funds associated with a transfer area for that partner. The cells the personnel expenses are contributed by copied down into the MDC transfer area

where they will be summed and copied to the Control Panels sheet. If a different partner, DEM, paid for the expenses for example, then the name of that partner would be entered in these cells and the data would be copied to the appropriate transfer area.

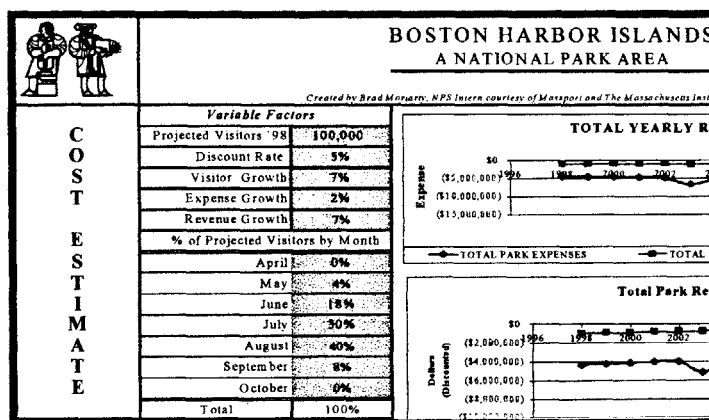
On the Control Panels sheet the data from every island adds together to give a picture of the Park as a whole. So the contribution made by MDC will be totaled for each island and then every island's contribution will be added together on the Control Panels sheet.

Nearly all of the cells are connected to the growth factors listed on the "Control Panels" sheet. The factors include Discount Rate and growth of Visitors, Expenses and Revenues. The discount rate allows the program to calculate revenues and expenses in adjusted dollars as well as nominal dollars. Changing these factors will alter the rates of change of all related data across the time frame.

As shown in the image of the "Control Panels" sheet below, the factors are adjacent to the graphs for easy access. Depending on the speed of your machine, changing these factors can take substantial calculation time.

6.3 SUGGESTIONS FOR USE

Because of the time involved in data input, someone with adequate time to allow the system to process should enter the basic information. After entering the required data, changing one or two cells at a time will not take overly long.



6.3.1 OTHER ISLANDS

Since there is only one sheet for all the smaller islands, there may be a need for more space to enter data. At present, the number of data fields on each island sheet is fixed at thirteen, which means that each transfer area needs to be increased every time the main data area is increased.

To utilize the existing data fields, it is possible to consolidate each partner's contribution and enter it as a line item in the extra "Expense" lines at the top of the "Other Islands" sheet. Then the Partner's symbol can be entered in the appropriate cell. This will allow Cost Estimate to tally the individual partner's contributions and display them on the Control Panels sheet.

6.3.2 OPERATIONS AND MAINTENANCE

The Park has many variable expenses, usually tied to the number of visitors, that can be reasonably estimated. The fixed expenses can also be tracked without too much difficulty. The model provides places to input the salaries of rangers and managers and seasonal help. It also allows the user to vary the number of visitors a given person will be responsible for. This way the variable costs will rise as the visitor level rises.

6.3.3 INFRASTRUCTURE

Capital improvements will be the major cost driver for the Park. The infrastructure section of the model, shown here, offers places to enter costs for landings, visitor structures, sanitary facilities and more. Because the

number of capital improvements will vary depending on the island, the section is designed so that by grabbing the row numbers that

<i>Assumptions Regarding Infrastructure</i>						
CAPITAL						
	I=Yes, 0=No.	Cost	Incurred in Years:			
Boat Landing	1	\$1,500,000.00	10	20	30	MDC
	I=Yes, 0=No.	Cost	Incurred in Years:			
Sanitary Facilities	1	\$20,000.00	1	6	11	MDC
	I=Yes, 0=No.	Cost	Incurred in Years:			
Visitor Center	0	\$60,000.00	10	20	30	MDC
Other	I=Yes, 0=No.	Cost	Incurred in Years:			
Visitor Structures	0	\$60,000.00	15	25	40	MDC
Other	I=Yes, 0=No.	Cost	Incurred in Years:			
Visitor Structures	0	\$60,000.00	5	35	50	MDC
OPERATIONS						
Maintenance on	Monthly Cost per 1000 Visitors/ day					
Visitor Structures		\$100.00				MDC
Maintenance on	Monthly Cost per 1000 Visitors/ day					
Sanitary Facilities		\$100.00				MDC
Total Infrastructure Costs						

correspond to a given capital project and selecting “copy” from the “Edit” menu, then highlighting the last row of that same project and selecting “paste”, a whole new project can be added. In this way the model can adjust to the changing needs of the Park.

6.4 FUND DISTRIBUTION

George Price, upon viewing the alpha version of the model, suggested that it include the ability to keep track of where the funding for each project came from. The federal match only includes those funds contributed by the private and state members of the partnership or through outside private sources. The legislation does not guarantee the Park a cash flow, but does provide the matching as a form of incentive to the partnership.

For every three non-federal dollars contributed to the Park, the federal side may put up one. Admittedly this is not much of an incentive since the match may not materialize at all. However, as with most things political, if the private side puts up a substantial contribution the leverage available to the lobbyists grows dramatically.

Therefore, keeping track of the sources of funds will help the Park make its case to the federal government when the time comes to distribute the match.

6.4.1 CONTRIBUTION BY PARTNER

As shown in the picture above, each project can be attributed to a particular partner by entering the partner's code into the small green-colored cell on the right. When that cell is filled in the total expenditure for that project is copied down to the bottom of the sheet. In that lowest section of the sheet each partner has a space where all the projects and revenues and expenses attributable to them are totaled for that particular island.

Once the totals are available for each partner on each island, then the totals are copied back to the control panels sheet. Once there, all the individual island totals are summed together to arrive at the total contribution by partner. The partners are separated depending on their connection to the federal government.

Finally the model totals the partner's contributions based on their status as either federal or non-federal. Federal contributions to the Park are not eligible for matching funds, but non-federal contributions are.

On the right-hand side of the control panels sheet the totals are displayed and recorded as shown below, so that they might be graphed on the left-hand side of the sheet.

YEAR	1998	1999	2000	2001
<u>TOTAL PARK EXPENSES</u>	(\$3,537,264.03)	(\$3,590,756.68)	(\$3,606,308.19)	(\$3,645,356.64)
<u>TOTAL NON-FEDERAL CONTRIBUTION TO PARK</u>	\$1,919,691.37	\$1,963,662.64	\$1,968,870.22	\$1,996,683.69
<u>TOTAL FEDERAL CONTRIBUTION TO PARK</u>	\$651,546.76	\$635,000.00	\$635,000.00	\$635,000.00
<u>TOTAL UNMET PARK EXPENSES</u>	(\$966,025.90)	(\$992,094.04)	(\$1,002,437.97)	(\$1,013,672.95)
<u>POTENTIAL FEDERAL MATCH</u>	\$0.00	\$19,554.21	\$21,290.07	\$30,561.23

6.5 STRENGTHS AND WEAKNESSES OF MODEL

The model offers many features that can help the Park service monitor and plan their situation. From the basic capacity of the Park, crucial to the growth plan, to the estimation of the federal match, the model provides the partnership with a very valuable tool for decision making. These features, combined with the control panel, where the user can change several very important factors and watch the results without having to move through the spreadsheet. This service and flexibility comes with a price. The model is huge. With such size comes a price in speed, and that is the principle disadvantage to the model. What should be a rapid response system, allowing for sensitivity analysis, is in actuality a bit of a behemoth.

6.5.1 SPEED VS. SIZE

The essential problem is one of memory. The Excel format uses a great deal of memory to store information and process it. The reasoning behind this use of memory is flexibility. Each

individual cell can, theoretically, be attached to every other cell by some sort of formula. Or reciprocally, that one cell could utilize factors from every other cell in a calculation.

Because the model makes generous use of that concept many of the cells are inter-related and communicate with each other. This means that when any cell is changed the computer must check to see if any of these multi-connected groups is affected. The way it checks that is by calculating every single connection over again using the values in the cells provided. However, since you can only change one cell at a time this means a great deal of waiting for the machine to process.

The author's computer is a 133MHz machine and requires several minutes to open the file and several more minutes (like 10) to make calculations after a cell is changed. George Price's 233MHz computer at the National Park Service offices required only 4-5 minutes to complete the same tasks. A 400MHz computer might help but the reality of such a large model is slow processing.

Given that the original intention of the model was to provide interactive sensitivity analysis of different situations in a partnership meeting situation this speed problem is a serious detriment to the goal.

6.5.2 DESIGN FLAWS

One problem with the model is it is designed to be a tool to manipulate data derived from unreliable or corrupted sources. Another problem is the brute force method it uses to move data around the program. The desire expressed by George Price prior to generation two of the model for selectable accounting of the source of funds or expenses necessitated a quick solution to dividing the system into thirteen parts.

The simple solution was to create thirteen separate duplicates of the data fields with switches used to either enter data or not depending on the position of the switch. This forms a large and cumbersome matrix that must be filled every time a cell is changed. It is likely that using Visual Basic for Applications (a high level language that allows applications to exchange data and

consolidate commands) some of that complexity could be eliminated and a greater degree of flexibility could be achieved.

As the model stands only some of the cells can be expanded so long as they are all provided by the same partner. If the fields are to be increased then all the transfer areas must also be increased. This operation is possible but does nothing to simplify the situation.

The capacity section, as described earlier, simplifies the effects of ferry transportation in an effort to generate a maximum capacity. As further study showed, the ferry system has a tremendous impact on the capacity of the system and should be modeled more accurately. If the electronic ticket system were implemented there would be sufficiently accurate data to make a more detailed view of the ferry system a requirement.

The graphical display leaves something to be desired and does not reach the goal of providing useful information in an easy to understand format. Some of that can be traced to a lack of understanding on the part of the author as to who the audience really is. The graphs for a pitch to a company targeted for a large gift would emphasize the disparity between what is needed and what is available. The graphs for long-range planners would look completely different, possibly mimicking the long colorful graphs used in the CHOICES model to demonstrate cost trends.

The size of the single file prevents the model from moving from computer to computer with ease. Ideally the model should move quickly from machine to machine, allowing the users to show changes to different people in different locations without the use of special drives.

7.0 THEORY TESTING

This model and the project as a whole, as stated, have evolved over the course of the author's work. This model, indeed the entire project for the NPS, falls more under the rubric of consulting report rather than scientific study. The model was designed to be a tool for use by the NPS and IA and any others with interest in funding for BOHA. As such the model was, and is, simply a vessel into which the users may put whatever they wish. In the case of the capacity of The Islands, the data is less than scientific, and, as outlined, there were no other options available for more accurate data regarding the geological capacity of The Islands.

If given the opportunity to continue this study the author would focus on the electronic ticketing system and abandon the study of revenue and expense data for any other area. The ferry system will, in its final form, be a very complex operation shuttling thousands of people every day at the height of the summer. Studying the more subtle dynamics of the ferry system and adapting the capacity section of the model to match those subtleties would make the estimate of Island capacity far more representative of the true situation.

The electronic ticketing concept, outlined in detail below, offers the opportunity to track the movements of thousands of passengers every day and measure point to point times and actual duration of stay for any given visitor. That sort of data would make this model a true scientific instrument.

The sensitivity of the model to changes in ferry size is significant as seen in section 6.1.4, the changes in ferry capacity impact the capacity of the Island almost linearly. Average length of stay (ALS), by contrast has a much more limited impact because ALS has a maximum of the day's length the worst case scenario would be visitors who want to stay all day on the Island. ALS only impacts turnover, that is the point during the day when, if the Island is full, visitors waiting on a ferry are allowed onto the Island only when visitors already there leave. The key point is that turnover only impacts the situation when the Island is full. If the Island is below geological capacity then every arriving passenger is allowed to get off and visit the Island.

Even using very large ferries arriving at short intervals the larger islands never filled to geological capacity before the day was half over (the point at which the model assumes the ferries start taking people back). That means that ALS is not a factor on the larger Islands. Because the model assumes that visitation would be tightly controlled to the smaller Islands they would never be serviced by such large ferries and, again, turnover would not be a factor.

8.0 MATURE PARK

If the Boston Harbor Islands are going to thrive then they need to recognize that this Park is just as much a business as a National Treasure. That may seem callous, but the financial reality is that this Park needs to generate its own money. This sets up the current problem of preservation and status quo versus development and change. Everyone familiar with the economics of the Park knows that private money and development are required, short of an unbelievable gift, to build and sustain the operations of the Park into the future.

In my analysis of the Park's capacity I began to ask the same questions the planning committee asked and is still asking. How will we attract visitors? Where will our operating expenses come from? What should the Park look like in the future?

My analysis assumes a fair number of things that may or may not be true. My reasoning went as follows:

- If the Park can hold more than 500,000 people in a season easily, how can the Park use that flow to earn money to care for the system as a whole?
- People do not expect to pay an admission fee to a National Park (Area), but they do expect to pay for a ferry ride.
- People expect to see buildings and places of historic or geological value at a National Park, they do not expect to see rampant commercialism.

Media attention paints a dim picture of developing The Islands. A paragraph in the October 25th Boston Globe insert on The Water's Edge quotes the BRA's Linda Haar as saying, "The one thing that everybody agrees on is that The Islands are a treasure and we shouldn't screw them up."

- Without development and improvement The Islands will not thrive.
- The Park does not have the financial safety net of the Department of the Interior.

Based on the MDC and DEM assumptions of individual island capacity and the other simplifications of the model, the Park should handle over 1,000,000 visitors annually. This means there exists tremendous opportunity to serve these visitors. However, the number of visitors, specifically tourists attracted to the Park depends on the facilities and attractions available. The Islands already boast tremendous historical attractions and unique geological formations but lack the services that make visitors comfortable like restrooms and dining facilities. Without those facilities, The Islands will remain a secret refuge for those in the know who are willing to put up with some inconvenience to enjoy the scenery.

8.1 ASSUMPTIONS

I made the following assumptions regarding goals for the Park:

- The Park will eventually be a feature attraction to the city of Boston for tourists.

- The Park seeks to maximize the number of visitors, provided they do not endanger the condition or future use of the resources.
- Development is required to serve the needs of the intended visitor population.

There are many groups and individuals who believe that the park should not seek to attract large numbers of people. These two views demonstrate the conflict between the desire to grow the Park and the desire to preserve what already exists. Solving this contradiction is the key to success. I believe the way to compromise is to focus on developing Spectacle first as one of two hub-islands in the Park, with many smaller developers contributing to spread the risk

8.1.1 HIGH VS. LOW VOLUME

The essential question voiced by Sara Peskin of the National Park Service is one of volume. Does this park push to attract and serve as many people as possible or does it try to minimize volume in an effort to preserve the resources? Ms. Peskin hopes that some middle ground can be reached, but there exist strong forces for the polar extremes.

This author assumes that development and relatively high use will save the park and its historic buildings. As the park exists now the buildings, especially those on Peddock's have fallen into a tragic state of disrepair. Even the stoutly built Fort Warren on George's Island will eventually crumble down without money going towards maintenance and preservation. Without increased visitation these tremendous monuments to our history will go unnoticed. That is the greatest tragedy.

8.2 ISLANDS

The fundamental assumption made in this paper regarding the islands, beyond the idea that they should be developed and used, is that Spectacle makes the best choice as the primary Hub of the system, with Peddock's running a close second followed by George's. The idea with this strategy is

that the non-hub islands can be protected yet still be available for use if the majority of the use is concentrated on a few islands designed for that kind of use. There are many other options and proposals for a hub-system, from Peddock's to Long, or staying with George's; given the assumptions made by this author and the limitations of the model generated, Spectacle seems the best choice.

It goes without saying that some islands will never be used and others may come in and out of use like rotated fields, but unless the major islands are designed with high traffic in mind, they too will suffer in the long run. For this vision of the park to work the Hub islands need to be robust, yet maintain the character of the park with trails and beaches and quiet places to escape even if the island is heavily used.

8.2.1 HUBS

The previous management plan (Council 1972), though well thought out and comprehensive, was too much. Too many projects and ideas were chasing too few dollars. The concept of hubs allows the ferries to act as a faucet to control flow of visitors to the other islands. Large ferries can move massive numbers of visitors to and from Spectacle and Peddock's, while small ferries can meter out controlled numbers of visitors to the other islands. Tightly coordinated ferry schedules to the hubs maximize visitor convenience by allowing them to come and go from the hub-islands when they please.

This way a large number of visitors can have an "island experience", and the more sensitive islands can be protected at the same time. The free shuttle ferry to the other islands can easily control the number of people who visit the ecologically sensitive islands and those who must wait can do so on a developed island where they can safely walk around, enjoy themselves and enjoy the Park. As the system exists today if visitors were turned away from George's Island they would remain at Long Warf and they would miss the island experience altogether.

The hub-islands can become the focus of development. Basic infrastructure like water, sewer and electricity can be spread over a larger number of projects, reducing the cost and risk. Visitor

pathways can be designed to connect the different attractions. Corridors between attractions provide perfect locations for shops, restaurants and accommodations. The infrastructure required to supply these facilities can be coordinated. Supply roads and a supply dock can service all the facilities; visitor pathways can connect the facilities with pleasant promenades.

The connection between developments also allows for synergy between projects. If the development was uncoordinated or spread too thin, the chance of a visitor using multiple facilities drops precipitously. However, with development restricted to two islands then the different attractions and services will bring business to each other and the visitor experience will be one of variety. The visitor who leaves The Islands should say, “there was so much to do; I couldn’t do it all in one visit.” That way they have incentive to return, hopefully with friends.

8.2.2 SATELLITES

The smaller islands will require special attention. One possibility would be to open them like attractions, only when the visitor volume warrants their opening. The other possibility would be to open as many as possible and only close one when it becomes overused, leaving it closed to lay fallow and recuperate.

Some of the smaller islands were open at one time and after losing their docks in winter storms remain closed. The Outer Brewsters fall into this category and could easily be added back into the list of available islands. The key to the entire use and operation of the smaller islands is to make information available about what they have to offer. That way the investment of opening the island is worth the expense because people will actually use it.

8.2.3 DEVELOPMENT

I began to think about the Park as a purely business venture, and compared it to other large-scale theme parks. Economics Research Associates (ERA) has completed many assignments for the

Walt Disney Company over the years, and those theme parks all bear the following primary characteristics:

(From the ERA website, <http://www.wenet.net/erasf/PAPERS/future.html>)

- They have a family appeal;
- They contain one or more themed environments;
- They have some form of "ambient entertainment." That is, strolling, musicians, performers, costumed characters and the like, who perform for "free";
- They have a high investment level per unit of ride or show capacity;
- They have high standards of service and maintenance and cleanliness;
- They contain enough activities (entertainment content) to create an average visitor length of stay of typically 5 to 7 hours; and finally,
- They will usually, but not always, have a pay-one-price admission policy.

ERA goes on to say that recently, there have been variations from the formula. These include theme parks oriented around one theme or toward one market. This includes aquatic parks and children's parks. A second departure from the traditional theme Park is indoor theme parks combined with retail shopping centers. The largest examples of these are West Edmonton Mall in Canada, Lotte World in Seoul and Mall of America in Minneapolis.

Typically, residents (from within 1.5 to 2 hours) will account for 80 percent of traditional theme Park visitation. Even the tourist visitors are often in the area for other reasons (such as visiting friends and relatives). Thus, just having a theme Park does not automatically insure an influx of tourism. Rather, to impact destination tourism, a theme Park must:

(From the ERA website, <http://www.wenet.net/erasf/PAPERS/future.html>)

Be unique, a "must see" destination.

This can be accomplished through character development (Mickey and his friends), architectural form, natural features, special events and programming (Opryland) or a combination thereof.

Have large scale and a critical mass of attractions.

Investment levels to impact international tourism generally must exceed U.S. \$150 million. Combine high technology with human scale and quality service. Investments in the thrill hardware must be combined with a high level of service from the "hosts and hostesses" so that a unique local culture and friendly human contact is balanced to the high technology.

Encourage overnight stays.

The principal economic benefits of tourism come when overnight stays are generated. Day visitors or tourists who stay with friends and relatives generate only 20 percent of the economic impact of tourists staying in hotels and motels (\$50 versus \$250 per day). Thus, in designing a theme Park for tourism, a multiple attraction destination (with experiences that can occupy two or three days) is more likely to have the desired impact.

Have complementary destination activities.

Tourist-oriented theme parks should be part of a mix of recreation and leisure activities. A true tourist destination would also have supporting recreation uses such as high quality hotels, convention and conference facilities, resorts, recreational shopping and dining experiences, and sports activities including golf, tennis, and water-related activities, and excursions into nearby local tourism areas.

Support media (TV) coverage and exposure.

Like most other things in life, future theme parks must be designed for television. The use of theme parks and resorts as backdrops for variety programs, celebrity games, sports competition, and convention/conference broadcasting is increasing rapidly and the resultant TV exposure is very important in creating awareness in tourism markets.

If the Boston Harbor Islands consider themselves a business then these lessons offer some direction. Taking each of the characteristics outlined above from the ERA's findings we see an image of the new Park take shape.

8.3 FERRIES

This brings up the issue of visitor management. Currently, visitors take a ferry directly to George's Island where they catch a smaller ferry that can take them to the other islands. George's acts as a hub for the system but is unsuited to that task. George's has limited capacity and a low tolerance for building of additional infrastructure, and, in keeping with the goal of the Park to protect these resources for future use, George's must eventually be restricted in its use as the number of visitors increases.

If George's stays as the hub of The Islands the ferries will be forced to drop people at other islands if George's is full or the Park as a whole must refuse more and more visitors as interest increases. Anyone who has waited for the ferry to Alcatraz Island in San Francisco Bay can attest to the frustration of being turned away. In keeping with the goal of maximizing visitors, the Boston Harbor Islands should strive to never turn a visitor away.

Here again Spectacle and Peddock's prove to offer tremendous advantages. With no real limit on visitors and potentially a very popular set of attractions, Spectacle and Peddock's make perfect hubs for the system. Admittedly Spectacle is a long trip for visitors from the South Shore, and ferries from Hingham and Quincy might focus on Peddock's, as ferries from Boston focus on Spectacle.

Once on a hub island visitors can take a free shuttle ferry, as they do now, to any of the other islands. Those ferries could easily be scheduled to regulate the number of visitors on the more sensitive islands. Keeping the goal of protecting the resources for future use.

Have an "Island experience", as long as the facilities on Spectacle maintain the correct feel. This will involve significant planning, but by separating the island into various areas of activity, the people who want a shopping experience can be kept away from those who want a natural experience.

Mix private boaters with ferry riders and allow all to enjoy the facilities equally.

The boating public has cried out for a marina on The Islands and Spectacle provides a perfect opportunity for that as well.

8.3.1 MAINLAND AND SHUTTLE

The three most important factors in the operation of the Boston Harbor Island ferry system are:

Preservation of resources.

Safety, satisfaction and comfort of visitors, and

Benefit to the Park.

Naming a set of hub-islands allows the Park to utilize the ferry system as a flow controller. Larger ferries transport the bulk of visitors to the hubs where they can take smaller ferries to the more sensitive islands. These different sized ferries need to provide safe, fast and comfortable transport from point to point.

There exists the danger that ferry prices will exclude interested people and families from visiting the new National Park Area. Offering coupons to families and low income persons may mitigate this danger. Another exclusionary danger lies in the choice of gateways. The possibility exists that small towns interested in direct access to the Park will be excluded based on size or financial status. These concerns are equally difficult to deal with. One possibility would be to make stops for the smaller ferries at the smaller towns and gateways at the larger ones.

This presents a logistical difficulty which might be solved with an advanced ticketing system. Using a magnetic strip on a paper, credit card style tickets might be made available through machines like ATMs. With tickets sold this way machines could be set up all over the area and one ticket would give access to the entire system.

This would give greater flexibility in contracting for ferry services. Using a managed competition strategy, the chosen operators could be broken up into large gateway ferries with fewer

stops and smaller shuttle ferries with many stops, but the incentives could be aligned to favor the visitors. If each gateway ferry operator were paid based on how many visitors they transported on each leg, and visitors had the option of choosing between operators, then the visitors control who gets paid. Because the visitors choose which ferry they will ride, the operator who attracts the most visitors gets paid the most.

All these concepts are in keeping with the primary goals, of preserving the Park for future use and maximizing the visitor's experience. By keeping visitors interested and happy, providing access to the broadest cross-section of the population and protecting the most fragile of The Islands the ferry system can add tremendous value to the Park as a whole.

The overriding goals of the Park are to preserve the resources while providing maximum access to the greatest number of people. This Park and The Islands that comprise it offer the most wonderful variety to the citizenry of Boston and its environs. Frederick Law Olmstead knew the potential of these islands and included them in his plan for the interconnected green spaces that enliven Boston today.

The Olmstead plan called for what is now known as the "Emerald Necklace". This string of interconnected parks and green-ways provides relief from the city gray from the Charles River to the City limits in Dorchester (National Park Service 1994).

Unfortunately Olmstead's plans for The Islands proved too visionary to the Park commissioners at the time. In just under 100 years those in charge of The Islands have realized the value they hold for the people of Boston. Preserving these islands serves the interests of everyone involved, especially those future generations that may learn from and enjoy these islands. The unknown part of the equation lies in the effects of so many visitors.

The large number of visitors tramping over the terrain may eventually destroy the very resources they enjoy. The division of the ferry system, combined with well-planned development will allow the management of the Park to control the flow of visitors to the most sensitive areas.

At the moment no one knows exactly how much use the largest islands can absorb without appreciable damage. The numbers used in the capacity model come from educated guesswork on the part of rangers and other managers gleaned over time. Without any real data on the destructive effect of visitors any limitation of visitors serves only to perpetuate this ignorance. Using the hub system to focus use on those one or two islands strong enough to withstand high volume protects the other islands from overuse.

The Mainland-Island ferries, sized to speed the transfer of visitors to the Park, can operate at maximum efficiency without worry of dropping too many people on a sensitive island. Once those visitors arrive on the hub-islands they have the facilities and attractions available to give them an enjoyable island experience without endangering the other islands. Controlling the flow using smaller ferries from the hubs to the other islands allows managers and researchers to monitor the effect of visitor volume on the condition of The Islands.

For those visitors with a particular interest in the other islands, a smaller ferry, operating at a controlled volume, offers transport to any of those islands. By breaking the travel up this way only the motivated visitor will reach the most sensitive areas. And if the visitor use of those islands proves dangerous the small ferry easily allows the management to scale back on the visitor volume.

The hub system adds complexity to the visitor's trip. This complexity needs to be addressed if visitor satisfaction is to remain high. The average visitor will take one form of transportation from her house to the ferry jump-off point, then take the Mainland-Island ferry. Once on the hub-island, if they want to see a different island, they must wait for another ferry and ride again to get to the final destination. To get home the whole process must reverse.

According to Andrew Hargens of the Massachusetts Port Authority passengers on public transportation become more dissatisfied as they change modes. If a typical trip using the hub system involves a car and then two ferries each way then that is three "modes". Because visitor satisfaction directly affects their willingness to return and, more importantly, speak well of their Park experience, the management needs to minimize the number of modes the average visitor uses.

One way of minimizing the number of modes is to identify the most popular islands and provide direct ferry access to them from the mainland. This access can be modulated to limit access to the non-hub islands.

There will exist those visitors for whom ferries are just transportation. Those visitors will desire the fewest modes possible. These visitors will be looking for a simple experience that minimizes their effort. For example a family with three small children may not want to ride four separate ferries over the course of one day. Other visitors will see the ferries as an experience in and of itself. For them the ferries will serve as a minimal obstacle with the benefit of more privacy on the other end.

The low-mode traveler, like the family with small children, needs to have available all the amenities of the Park so they do not feel excluded. This means The Islands served by the larger ferries should offer a wide range of recreational opportunities for people of all income levels. The low-mode traveler should be able to take one ferry, and enjoy a variety of different activities, from beach going to shopping. Any alteration in the terrain of The Islands should take this into account. For example, on Spectacle the open spaces should offer trails and trees should be planted to offer shade to the resting walker. On Peddock's the facilities need to offer attractions for all ages and income levels, including but not limited to restaurants, shopping facilities and accommodations.

In either case those visitors may or may not have sufficient means to afford the existing fare, much less an increased fare. If, in the interest of improving ferry service, the Park allows the price for a ride to increase to \$10 or even \$12 there may be more visitors because the quality of service is better, but the type of visitor may change drastically. Even now there is some concern over the \$8 fare. There are those who say \$8 excludes low income families who want to take their children out to the Park but can't afford $4 \times \$8 = \32 plus food and transportation to and from home.

There are several ideas out there for how to deal with this problem. The best concept thus far is the coupon idea. Coupons targeted at low-income people and the other designated groups could offer a reasonable alternative to price cuts across the board. The goal is to improve access not operate

at a loss. The method for marketing the coupons and the pricing structure deserves its own analysis and is beyond the scope of this paper, but could include distribution at school systems, housing projects, at the welfare office or local community centers.

8.3.2 GATEWAYS

One of the fantastic opportunities available to the Park is the interest of the local towns surrounding the Park. Hull, Quincy, Hingham and Squantum just to name a few, exist close enough to the Park to take regular advantage of the facilities. These towns have a variety of interests as regards the use of The Islands, from hiking, biking and picnicking to shopping and concert going. Each of these towns would like to have a ferry landing (gateway) for access to the Park and the revenues generated when Park visitors flow out through their gateway. While it would be nice to give each town its own gateway that would make for long and inefficient ferry runs, or lightly traveled boats. In either case it would mean using a series of smaller vessels rather than a few large vessels. Given that the large vessels already travel the route for commuter purposes there is tremendous pressure according to Andrew Hargens of Massport and Jeffrey Bryan of the Volpe Center, to take advantage of those larger boats already plying the waters of Boston Harbor.

If the hubs are designed to hold eight to ten thousand people a day then the ferries must hold several hundred at least. If the Park attracts 150,000 people next season and the season is 100 days long, that is 1,500 people attracted every day. Of those 1,500 visitors, the author estimates that less than 300 come from the south shore based on conversations with ferry operators from Boston Harbor Cruises and Harbor Express. If every town had a gateway then those 300 visitors would spread over those gateways relative to population. That would lead to half empty ferries or long travel times among other possibilities.

Some possible scenarios:

The operators exist in a free market as they did many years ago. They would compete for dock space and visitors and the strong would survive. This system worked for many years before the state stepped in and began to regulate traffic to The Islands.

Each town gets its own ferry, in which case there are five or six ferries vying for space on the island's docks, waiting each trip for a landing. None of those ferries would be full and their operators would be losing money on almost every trip.

Every town is a stop for a larger ferry. Because of the convoluted nature of the south shore and the deep inner-harbors in places like Hingham and Quincy it would take up to two and a half hours to make the trip out to Peddock's or George's after visiting all the smaller ports. So, depending on the direction of the ferry either your outbound trip takes forever or your inbound trip does.

One or two towns get a gateway for large ferries and all the smaller towns are allowed to have taxi service to the hub islands from their local docks. Naturally taxi service will be more expensive, but it will be faster.

Two or three towns get gateways and all visitors from the south shore must use those gateways.

Or, using the electronic ticket system outlined below the large towns get large gateways and the smaller towns get a stop on the inter-island shuttle.

The fact that a free market system worked for the islands means that there existed a viable business in ferry transportation. That adds credence to the notion that a managed competition system would work. The first scenario has been rejected by the partnership and the next two scenarios are impractical from a time efficiency standpoint, so we will only consider the latter three. In those cases the difficult choice becomes, where to locate the gateways. The concerns are technical, practical and political, and the use of an electronic ticketing system needs greater explanation. That explanation follows this more general outline.

From a technical perspective the gateways must provide adequate throughput. That means sufficient parking, proximity to major roadways, adequate water access for large ferries and facilities for visitors who require information or bathrooms.

From a practical perspective the gateway must have attractions in its own right. The overall goal of the Park is to provide interest and activity that will last several days. A gateway that only adds people to the Park fails to increase the overall appeal of the Park. The town must offer an historical or educational attraction in addition to the shopping dining and accommodations that can support a tourist load of about three hundred people a day.

Such attractions and docking facilities require substantial financial support. In fairness to the towns without existing state-built ferry docks there needs to be some equitable means of judging the town's contribution. Towns, like Hull, that have a significant historical connection to The Islands and greater Boston need special consideration even though they might not be able to provide the same facilities as a more developed town like Quincy.

The electronic ticket solution might include stopping the inter-island shuttle in Hull and World's end, and allow people to purchase tickets there. Treating the smaller towns like non-hub islands allows them to be a part of the Park, an attractive destination on their own. Hopefully, with the town's help, support facilities will arise and the smaller towns will act as synergistic elements in the Park as a whole. This strategy requires the electronic ticketing system, outlined below, the expense of the ticketing system might be born by the towns involved, the ferry operators or some combination.

8.4 ELECTRONIC TICKETING

Given the complex nature of this ferry delivery strategy and the issues raised by the smaller south shore towns who want gateways to the Park, there exists a need for a more complex means of tracking visitors. One possible solution involves the use of a ticketing system like that used in the Washington DC Metro system.

The Metro uses paper cards the size and shape of a credit card. The card has a magnetic strip on one side that contains a binary code. Magnetic encoding allows each ticket out of millions to be unique and contain data written onto it. This could be used to track visitor usage and keep track of cash flow in the ferry system.

The system could work as follows:

When a visitor buys a card basic demographic data is entered into the system and the machine writes the date of purchase on the card (this could be entirely automated at ATM style machines). When the visitor boards a ferry a card reader/writer imprints the point of embarkation and the time. Then the visitor disembarks the ferry and scans the card to get off. The card is imprinted with the time of arrival on the island and the name of the island.

The visitor makes her way around the island and decides to take the inter-island shuttle to a smaller island. Once again the card reader allows her on and off the shuttle. Her card is imprinted with times of departure and arrival and the names of The Islands she visits.

When the visitor finally decides to go home she scans her card as she gets on the ferry to go home and when she puts her card into the machine to disembark the machine retains her card just as in the DC Metro system. However, if she purchased a multi-day pass, the card is returned to her for future use. When the card passes through the machine at the end of her stay the data written on it is downloaded into the machine which calls the Park service every night to upload the day's data onto the server.

From this one trip we learned the following about our visitor:

Her general demographic data, including, perhaps, information she volunteered like her home zip code and income bracket, which would be optional questions when the purchase was made.

Which ferry she used to get to The Islands.

How fast the ferries transported her between points.

Which islands she visited and for how long.

How often she used the inter-island shuttle.

This is useful for a number of reasons.

First, the visitor has one point of contact to purchase entrance to the Park. She can buy her ticket whenever it is convenient, perhaps there are Boston Harbor Island ticket machines in Fanuiel Hall or in Mass-Pike rest areas as well as at every embarkation point.

The convenience factor should not be under-rated, and the potential for exposure is enormous. If people do not need to go to the harbor to buy their tickets they will be more likely to buy a ticket if presented with a coupon or incentive or on a whim. Once the ticket is purchased the visitor has a greater incentive to find their way to a gateway and get on a ferry.

Second, the data gathered will allow the Partnership to keep track of utilization of various Park resources. For example, the data can show how popular a particular island is, that data will be impressive when asking the available sources for more money or upgraded facilities.

Third, the cards will allow the Partnership to keep track of ferry performance. The data will show which ferries are consistently late or on time.

Fourth, the cards allow for the possibility that people could come in on a ferry operated by one company and leave on a ferry operated by another. The data will show how much each ferry is utilized and that company can be compensated accordingly.

Fifth, and most important, the Park collects the money (more likely a private contractor hired to operate the ATM machines collects the money, but it ends up under the control of the Park). This offers tremendous flexibility as far as contracting is concerned. Ferry operators can be compensated based on speed of delivery, number of trips, length of trip, number of visitors using their gateway; the possibilities are extensive and interesting.

The card concept consolidates the ticketing layer of expense by standardizing it for all operators. For example, a ferry contract could be let where the ferry company is paid based on the number of passenger miles delivered (where a passenger mile is the unit attributed to one passenger traveling one mile). Because the ferry operators bid on the most basic unit of delivery they are forced

to analyze their costs carefully. Also, if visitors can switch ferries during their visit the ferry operators must win their passengers at every turn with a quality ride, excellent service and convenience.

Traditionally ferries have a lock on the customer when a ticket is purchased. Once the money changes hands the passenger is forced to travel out and back with that company. Often there is only one choice for ferry service and so there is little incentive for ferry operators to pay attention to customer service.

Using the card system the options for incentives change drastically. By forcing the ferry operators to win over their customers every time they get on board it gives the visitor more choice about when they ride the ferry and who's company they ride with. Giving the visitor that choice empowers them to reward the high quality ferry operator with more patronage, and penalize the low quality operator by refusing to ride. If the operator is compensated in proportion to the number of visitors who choose to ride with them they have a great incentive to attract visitors for all phases of their journey.

The ferry operators will then be forced to find out what makes a visitor choose ferry over another. If people want a fast ride and they don't care as much about amenities then the operators will move towards faster vessels. If people prefer smooth rides and comfortable accommodations then the operators will move towards more stable vessels with more comfortable interiors. The incentives put the visitor in control and force the ferry operator to raise their standards. The Park just needs to set up the system and maintain it, the system provides the incentives from there.

To make the card system work it requires its own operating group. Once again this should be contracted out if possible. The system requires ATMs, telephone connections, a mainframe, a custom designed software package, people to empty the ATMs and an accounting system and location. Because the ATMs can contain thousands of cards and hold the money collected they won't require emptying all that often. The machine can even call to be emptied when it realizes that it is full.

On the subject of price, the card system can accommodate an input device. As in the DC Metro, the cards can be reinserted (if they are not retained) and value can be added to them. In this case the input device could be a similar card that is actually a coupon. The coupon-card could be distributed using the same channels discussed earlier. The coupon-card, once inserted into the ATM would be just like cash. The remaining money could be inserted using the same technology found on vending machines for reading bills.

Because the tickets can be purchased remotely, there needs to be a special child's ticket that is clearly marked so that the operator monitoring boarding of the vessel can observe if people have an adult ticket or a child's. The marker could be printed onto standard card stock along with the date of purchase and price

8.5 CONTRACTING

Regardless of the ticketing system, the Park's ferries offer an opportunity to help preserve the resources, add value to the visitor's experience, and funnel some of the revenue generated back to the Park. To accomplish the last item the ferries need to be separated into the smallest divisions practical. Most organizations are unable to keep track of where their money goes and only have a vague notion of the true profit margin they work with. Breaking the ferry system into smaller pieces allows the Park to negotiate the profit margin not the total cost.

The ferry operation has been broken down into two levels based on the use of the electronic ticketing system:

Without the system the breakdown is shuttle ferry versus gateway ferry. With the system all ferries can bid based on the miles a given passenger is actually transported. The goal is to return some of the profit of the ferry operation to the Park, and, if possible give the visitors greater market power. That increase in power will drive the improvement of the ferry system unlike any contract ever could. The use of these techniques depends entirely upon the number of visitors.

As interest in The Islands increases the total dollars in ferry revenues will become extremely attractive. Because of the quantum nature of ferry expenses (each new boat is a new level of expenses that are fixed and require a substantial number of visitors to recoup) these next estimates are rough. But, at between 350,000 and 500,000 visitors per year, there will be enough money flowing through the system to support two moderately sized ferry operators.

This author believes that competition between ferry operators, if well managed, will lead to improved service at reasonable prices

8.5.1 MANAGED COMPETITION

Managed competition involves the selection of a few qualified operators for the gateway service who will be given access to The Islands. They will be responsible for securing embarkation points in the city of Boston and will be given schedules they can tie up to the south shore gateway points as well as The Islands. The contracts are awarded to those operators who meet the qualification process and offer the greatest landing fee per passenger back to the Park. The benefit of this strategy is the shift of responsibility onto the ferry operators. They take the risk of low volume. They are responsible for generating their business and keeping customers coming back.

By putting the gateway ferry companies in competition with each other the incentive should be to attract the greatest number of visitors possible. Presumably they accomplish this by offering faster or more comfortable service. If the contract does not specify a ticket price then the two operators will compete with each other to give the lowest price. Because price controls consumer behavior more than other factors, if the Park wishes the ferry companies to compete on service and speed they should set the ticket price. Preventing the companies from engaging in a price war will force them to find other means of attracting visitors and winning market share.

The shuttle ferry, bid in a separate contract, will provide regular service on a prearranged schedule. The schedule provides controlled access to the smaller islands and will allow the operator to accurately estimate their expenses. This contract is awarded to that qualified contractor who

accepts the lowest monthly payment during the operating season. The visitors would then board this ferry at the scheduled times without charge and travel to the smaller islands in the Park.

Because the shuttle ferry operates on a controlled volume the cost should be steady and relatively predictable. The monthly fee charged by that operator, approximately \$175,000 (an estimate), will be paid with the landing fees from the gateway ferry operation. At 500,000 visitors per year a \$0.75 landing fee equals \$375,000, which gives a \$200,000 net to the Park after paying for the shuttle.

Issuing contracts such as these is a complicated process and it requires time for both the Park and the bidders. The problem, essentially, requires forethought. If the Park wants to create a fair and open contracting system it needs to create a contracting schedule several years in advance, three would be preferable, but two will suffice. Constructing a ferry can take anywhere from six to twenty months depending on the size and complexity. Ferries of the size and type needed to fill the contract terms should average around ten months adding twenty percent for delays and transport, gives about twelve months from order to delivery.

If a small contractor were to bid and win the contract they would require those twelve months lead time from the time they are awarded the contract to the day operation starts. So, working backwards, if the season starts on April 15th, 2001 counting back twelve months brings us to the previous April 15th. That means the contract for the desired year must be signed by the start of the previous season.

To continue backwards, if the contract is signed at the start of the previous season then the Partnership needs to decide on a contractor prior to that date. Assuming that the Partnership remains as busy in the future as it is today, the proposals need to arrive at the Park offices three to five months before the start of the previous season. Again, working backward, if the contract needs to start on April 15th, 2001 then the Partnership should receive the proposals one year and five months prior, or December 15th, 1999.

Continuing backward, if the proposals are due December 15th, 1999 then the RFP must go out early enough so all the potential contractors have enough time to read and respond properly. In fairness to all contractors this time frame needs to be several months. Assuming five or six months gives each contractor adequate time to deliberate on and formulate a proposal this pushes the distribution date for the RFP to between July 15th and August 15th, 1999.

Since an RFP does not write itself, additional lead time should be allotted for preparation of the RFP. Again, assuming the same time pressure on the Partnership and the ground-up nature of this new RFP, the partnership needs several months to deliberate the RFP and work through several drafts. Using five months as an estimate, that brings the start of the process to between March 15 and April 15th, 1999. That totals over two years preparation from the first meeting to the official start of the contract.

Ferry service starts.

10 months

1 week or less Winning ferry companies order ferries for delivery.

2 weeks Final contract is signed.

The winner is decided.

1 month (if the Partnership moves swiftly)

The Partnership receives all proposals and begins to deliberate.

6 months

The RFP goes out and bidders prepare their proposals.

3 weeks The Partnership selects a panel of qualified bidders.

2-3 months

The RFQ goes out and bidders prepare and submit qualifications.

3-4 months (perhaps longer)

The Partnership prepares the RFQ and RFP.

The beginning.

Total time = 23.5 – 25.5 months = over 2 years!

This may seem like an inordinate amount of time, but if quality bidders are desired then it is essential. The most important part of the timeline is the largest block at the end. Bidders should be encouraged to use the most modern ferry technology to offer the fastest, most economical and comfortable service to The Islands. Cutting back on this timeframe gives the advantage to those

operators who already have a fleet of ferries. That forces the whole process down a level and only hurts the visitors. The bidding process for the ferry contracts came under fire in the past for lack of fairness to smaller companies. The bid process, they say, allowed very little lead time, only three or four months. The contracts require the ferry operator to meet the schedule listed above starting on the contract date. Because smaller ferry companies need to place orders for new ferries, and those new ferries take time to build, the smaller companies could not guarantee that they would be able to meet the demands of the contract.

This gave significant advantage to the larger companies, like Boston Harbor Cruises, who already owned sufficient vessels to meet the contract terms. Not only did this prevent the smaller companies from competing, it also effectively locked the Park into a contract using older vessels.

The partnership could speed the process by devoting a smaller group of people to the project and give them the authority to complete the process, including hiring of consultants to help develop a complete RFP. Beware the format of the traditional committee and its requirement of checking in with the Partnership as a whole. If the goal is to speed the process, a traditional committee will only slow things down.

A more effective approach would be to write performance criteria in the Partnership meetings and then create a small group from the partnership or hire a consultant directly to generate an RFP.

Performance criteria depend on the type of contract but all should include:

- Vessel performance criteria, including: a safety standard (USCG can provide this), an environmental standard (airborne and waterborne emissions), a docking interface standard (so the vessels can all use the same docks with similar ease of embarkation and disembarkation), an appearance standard (dirty and rusted ferries detract from the image of the Park), a capacity utilization plan (how will the ferry operator deal with projected increases in visitorship).
- Visitor satisfaction criteria, including: a special needs access standard, on-time arrival and departure standard, full capacity accommodations protected from the weather.

- Schedule of penalties for non-compliance: ranging from fees to ineligibility for coming RFPs. One possibility would be to hold a cash deposit in escrow for each company on the contract, just as renters leave a deposit for an apartment. Return of the deposit could be used as incentive to meet the terms of the contract.

- Advertising requirements, including: a minimum dollar amount spent on advertising, possibly pre-submission of advertising or right to terminate unsatisfactory adds, use of the Island Logo (compensated or not, the Logo should be on the ferries and all ferry advertising consistent exposure is crucial)

- Selection criteria (this is most important): the respondents must know how they will be judged. Like students on the first day of school, if you ~~don't~~ explain the grading system they will never really pay attention. These criteria should be as fair as possible to companies of all sizes; best practice would involve using a quantifiable measure, like per-head landing fee or monthly fee, etc.

A fair process begins with a fair RFP. The creation and dissemination of this document will show more clearly than anything else how committed the Partnership is to the future of the Park. Treating the proposing companies with fairness will lead to more competitors in the future and better service to the visitors overall. By contrast, unfair practices and hidden costs and measurement factors will, over time, drive away the quality contractors and leave the Partnership to deal with what remains.

9.0 TRANSITION

Assuming that the Park chooses to follow the long-term picture outlined above, the next problem is how to get there. Essentially the two major areas that need management are The Islands and the ferry system that serves them. Within those categories are the hub-islands, Spectacle and Peddock's, and the order they are brought on line. Following that, the other islands seem most analogous to the individual fields a farmer might own in the mid-west. They need to be rotated as they become worn out by use, allowed to rest and then returned to service.

The ferry system, as shown in the model, controls the capacity of the entire Park. Careful planning is required to control the growth of the ferry system and modulate its operation to maximize visitor satisfaction and utilization while protecting the natural resources that draw the visitors in the first place. As part of that control and management, the Park can implement the electronic ticketing system in stages as well, brining potential visitors up to speed on the use and benefit as the Park becomes more widely used.

9.1 ISLANDS

The strategy espoused by this author is one of focused development. The Islands should be brought on line in a progressive fashion focusing the limited resources on making the open islands as clean, hospitable and well served as possible. The essential point is that people will notice the condition of the first island they see and form an opinion about the Park as a whole from that. Therefor the attention of the Park should be directed to the highest traffic islands first in the early years in an attempt to establish patterns of action by personnel and visitors that are in keeping with the image the parks wants to maintain.

9.1.1 HUBS

In the case of the Hub system, George's is the current Hub and should be treated as the welcome area to the Park as a whole. In the short term, with limited resources, the Park should concentrate its efforts on communicating the upcoming changes to the Park. This serves two purposes, first it whets the general appetite for the changes, generating interest and hopefully a positive buzz about the new Park. Second, the communications allows the Park to generate a dialogue with the visitors about the changes. While there will always be two or more ways of seeing the changes, open lines of communication will help diffuse problems and address concerns.

The author recommends the use of the internet as a means of felicitating these conversations. On the Park's web-site a chat area could be set up to create a forum for these discussions and an e-mail link for comments or an on-line survey could help the Park generate response without a great deal of effort or expense. Cards with the web address and e-mail address could be handed out as each person enters the Park or be printed on the ferry tickets.

The communication should emphasize the opening of Spectacle and the various attractions that will be available to visitors once the island is open. In addition to the information on Spectacle the web-site and promotional material should outline the proposed improvements to all the other

islands. The goal of the promotion is to generate interest in Spectacle. Once Spectacle is open the same process can be repeated with Peddock's.

The plans described to this author suggest that space/visitor-center will be available to promote the rest of the Park. That visitor center should house the majority of the promotional material, but there should also be substantial advertisement at all gathering places on the island promoting the visitor center and its collection of information.

The concept to follow is one of stages or phases, with each phase building on the last. The author believes that opening too many islands too fast will dilute interest in the Park so early in its growth. While the attractions on Spectacle will attract a different type of visitor than the attractions on Peddock's, the initial influx of visitors will be less interested in the attractions on The Islands than the experience itself. The emphasis should be to get people out to The Islands. It will be easier to deal with too many visitors than to stay with the current situation of "not enough".

9.1.2 PHASES

Phase I is the existing situation with George's acting as the Hub island. In phase II Spectacle comes on line and acts as the primary Hub with George's acting as a secondary Hub. As phase II progresses the smaller islands, closed now for lack of docking facilities, can open as they become available. In this phase Peddock's is treated as a tertiary island. Phase III comes when Peddock's is fully renovated and acts as the secondary Hub with George's moving into third position. Phase III marks the beginning of the mature system. With Spectacle and Peddock's both attracting and serving visitors, the visitation to George's can be controlled more carefully and the remaining islands can be brought on and off-line as they become more or less used.

The final phase will look much like a set of fields used for planting. The three biggest fields (the Hubs) are planted to maximize use of the land without overusing it. That way those biggest assets can be in operation continuously. The smaller fields may be in use for several seasons but may need a rest after a while to allow the land to regenerate.

Hopefully this analogy demonstrates the intention of this plan to manage the Park as a precious resource. However, even though the resource is precious it needs to be fully used to survive.

9.2 FERRIES

For the early years of the Park when visitor levels are still below 150,000 per year, it will be more important that the ferries run on schedule even if the ferry is nearly empty. That means the contracting needs to be sole source. As visitor levels rise and the Park moves into phase II, the ferries will serve Spectacle first and then George's. Visitorship will still be too low at this point to accommodate more than one operator, but the groundwork should be set at this time for the type of contracting the operators can expect in the future. This means that separation of the ferries into two different contracts, one for the mainland runs and one for the shuttle, can occur almost immediately. However, because of the time required for contracting and negotiation the most reasonable timeframe will be to coincide this division with the implementation of phase II.

The transition strategy goes as follows:

First, as the number of visitors passes 100,000 per year, bid the free ferry between The Islands separately from the mainland to hub service. One of the comments made during the last round of bidding for ferry service was the lack of time available for smaller operations to get orders with ferry manufacturers, leaving only those companies with large fleets able to bid effectively. Therefore, the bidding process should be started a year and a half before the contract is due to be let.

Specify the desired schedule and the projected increase in visitors in the RFP along with standards of timeliness and safety. Then bid the package on the lowest per month fee the operator will take to operate the ferry. At the same time send an RFP for the mainland ferry service, also with a year and a half lead time, but in this case specify not only the schedule, visitor level, timing and safety, also specify the maximum price per ticket. Bid this package on the maximum landing fee per passenger the ferry operator will return to the Park.

The current estimates of the cost to run the “free” ferries converge on \$100,000. If the Park gets \$0.90 landing fee per passenger or more at the 120,000 annual visitor level then the system performs as before. Assuming that there will be bids above \$0.90 landing fee per visitor and that the Park can attract 120,000 visitors, any increase in visitors means profit made for the Park.

The beauty of this bidding strategy is that the Park service can specify the minimums for each RFP. In the case of the “free” ferry the Park will not accept bids above \$100,000, and in the other case bids below \$0.90. Given that 120,000 visitors already visit The Islands, if responsible companies bid for the contracts the Park is likely to make a small profit from the ferries. As the number of visitors grows, so will the profit.

As the number of visitors approaches 300,000 the RFP for the mainland ferry contract can shift to a managed competition model. In this model two ferry companies, possibly three if the Park is growing quickly enough, will be chosen based on the same criteria (ticket price ceiling, fixed landing schedules on the Hub island, and maximum landing fee per passenger).

The ferry operators must arrange for their own jump-off points on the mainland and compete for business. In fairness the details of the contract must make landing times/availability and other non-bid elements equal among the competitors. With approximately 250,000 visitors the available cash flow should support two operators.

Market forces should force the competitors to either lower prices below the ceiling or provide differentiated services such as faster and or more comfortable ferries or more convenient jump-off points. In any case the “free” ferry costs should rise more slowly than the income from the landing fees, leading to increased cash flow for the Park.

As the Park grows and the number of visitors increases the cash flow from the ferry operations will be enough to support more than one operator. This should coincide with phase III, but may follow the opening of Peddock’s by a few years. The goal is to move toward the managed competition system only when the cash flow will certainly support it. Driving a ferry operator out of

business will tarnish the Park for a long time to come and prevent the kind of competition and quality that leads to good service for the visitors.

9.2.1 CONTRACTING

The single most important factor in creating smooth transitions in contracting is warning. The potential respondents need warning that things are changing. Giving this warning and sufficient information about the types and timing of the changes will give the sense that the contracting system is transparent. This is of prime importance as the Park grows because the contracting will mean tremendous opportunities for a ferry company to make money.

This means that the contracts for ferries should change as the Park grows. While the Park hosts fewer visitors the current system of one exclusive ferry contract makes sense. However, as the number of visitors rises there is room for more than one ferry operator, and competition between operators can help drive prices down and increase quality service.

The stages of ferry contracting relate directly to the number of visitors who frequent The Islands. Because the operation of a ferry enterprise depends on passenger volume, changes in ferry contracting depend on that volume too. Ferry operators must choose what sort of ferry they want to buy and then they are stuck with it. A large ferry, with high capacity gives more profit per passenger than a smaller ferry provided they both are full. This is the heart of the problem; as the number of visitors increases the operator's profit increases until they reach the capacity of their vessels. When their vessels reach capacity they have to buy additional vessels. After the purchase of those vessels, the additional expense combined with the lack of additional passengers leads to a dramatic decrease in profitability.

One solution would be to buy only small ferries, that way, if the number of passengers rises steadily they will be in the low-profit mode for only a short period of time. However, the additional costs of many small ferries makes the entire operation less profitable. The question becomes a matter of risk versus reward, and big versus small.

Keeping this dynamic in mind as the Park grows will allow the Park to realize the maximum gain by keeping the ferry operators at, or close to their highest profit margins and push them to operate at maximum efficiency.

While the Park is in these early stages of growth and visitor numbers still fall well below the capacity of the ferry system, the sole-source option seems prudent. Sole-sourcing, means giving exclusive rights to one operator. That operator experiences no competition for passengers to and from The Islands. However, even if the ferry operates at a loss they must continue to run every day at the contracted times. The existing sole-source contract also includes the "free" shuttle between The Islands.

As the number of visitors rises, the mainland-island ferries will become profitable. The exact capacity of the ferry system depends on a number of factors and depends on the company, but there are a number of small to medium sized ferry contractors who could operate quite profitably from a visitor flow of 100,000. Since the Park already sees over 90,000 visitors per year, 100,000 is not far away.

Once the mainland-island ferries become profitable (somewhere between 100,000 and 200,000 visitors), the "free" shuttle should be contracted separately. The inter-island shuttle, bid based on the lowest per-month fee offered by respondents, would continue to provide service to all The Islands. The mainland service, bid based on the highest per-head landing fee, would then subsidize the shuttle as it has in the past, except the cash would flow through the Park. As the number of passengers increases, assuming that the "free" shuttle is designed to grow more slowly than the mainland service, the cash received from mainland operations will exceed the cash required to pay the shuttle contractor. The Park keeps the difference.

Then, at about the 300,000-visitor mark, the mainland service should be contracted using the managed competition plan. The transition to this will be made easier by giving substantial warning to the community and the country at large of the changes. Creating a contract structure and method of

selection and sharing those with the public at large, and then sticking to those methods will foster a sense of fairness that will encourage higher quality companies to bid closer to the wire for the job.

9.2.2 ELECTRONIC TICKETING

There are two phases to the electronic ticketing system, ticket delivery and passenger monitoring. The first phase, ticket delivery, can be implemented right away. Michel Roy of DiBold corporation who manufactures the Automatic Teller Machines for BankBoston, says that the system can deliver anything that can fit in quantity into the delivery cartridge. The screen can then be altered with little difficulty to include a button that accesses the BOHA park information screens and purchase instructions. The customer can then use any ATM card that the machine accepts to buy tickets to the park system.

This is adaptable to the current system because no matter what the Boston Harbor Cruises tickets look like they could agree on a separate ticket, almost a coupon, that would be exchangeable for a proper ticket at the traditional point of sale (the waterfront). As the electronic ticket progresses (read if it works and is popular), the system can be upgraded to issue proper tickets and eventually true e-tickets.

Because of the enthusiasm shown by BankBoston the ticket delivery phase might be funded in large part by BankBoston. They might even front money for the development of the second phase.

True electronic tickets would contain data that would identify that ticket as an individual from among millions and millions of other tickets that the park might issue in the future. Because the ticket system could be ferry based, that is the card-readers could be on board the ferries rather than on land, the cost of the machines could be added to the cost of the ferries as an additional expense that the ferry operator would have to amortize in their bid price.

9.3 SUMMARY

Working with the people who are dedicating their time and energy to this park has been a wonderful experience and a learning one at that. While this document outlines one possible future, there are a few elements that the author believes are of paramount importance to the success of the park.

There are assumptions made here that derive from the view that the park is a business. Some of those assumptions may seem to go contrary to the preservation directive of the NPS, but it is the feeling of this author that those assumptions do not actually contradict but view the directive from a new perspective.

9.3.1 VALUE VISITORS FIRST

The notion of “customer first” may pervade business it has yet to cross over into the public sector with the same fervor. The NPS sees their goal of preserving resources as paramount, and the concept of serving visitors as secondary. This may be true if one were to view visitors in a limited time view. Assuming the park moves to a high use model, letting the visitors run wild over the park will surely destroy the resources, but that assumes that one is putting today’s visitors first. The concept the author espouses is a longer-term view.

If one considers all the visitors who will visit the park over the next thirty or forty years, the concept changes drastically. Preserving the resources becomes merely a part of serving the visitors rather than a goal in and of itself. Preservation simply makes the park available to the future visitor.

Thinking in that way preservation makes much more sense: preventing a little use now in favor of greater use in the future makes ultimate sense.

With this view in mind, the notion of serving visitors first becomes more universal. At that point one must look to see what needs of today's visitor can be met without sacrificing the future visitor. With that view the park can make tremendous changes that will benefit all visitors into the future and make the park more attractive in the process.

Development that brings in commercialism might not fit with the view of the park as natural refuge, but preserving the buildings and infrastructure in perpetuity might warrant constrained commercialism. Or at the very least commercialism confined to a particular location. The author sees this as a concession required by the financial independence of the park combined with the man-made nature of the treasured resources.

The difficulty of viewing preservation at odds with serving visitors is that it encourages mediocrity in services and lack of imagination in programs. Improving services and programs would attract more people to the area and increase use of the resources. In this mindset attracting lots of visitors becomes equivalent to destroying the resource. As a result the management encourages no change or development and misses out on possible opportunities to improve the park as a whole.

The Boston Harbor Islands are a particular case. Other parks that eschew increased visitor attraction fall back on government support, and that is quite right in the case of natural treasures like Yellow Stone and Yosemite where the land is the attraction and anything man-made detracts and defaces the natural beauty. In those cases the facilities are there to focus human activity away from the natural treasures or provide a pathway that can withstand the activity but remain in close proximity to the natural world.

In the case of the Harbor Islands, many of the attractions are the result of human activity on the land like the buildings and the stories that surround them. Preserving a man-made treasure is very different from preserving a natural one. The natural treasures maintain themselves and have for thousands of years. The only thing people need to do is not interfere. In the case of the Harbor

Islands the treasures require maintenance and regular care and attention. Staying away from these treasures dooms them to decay and destruction. Once the building is gone and the people who know the stories behind the building and its history die, there is little that can be done to resurrect them. That is the fundamental difference between the traditional NPS mindset and the one required for this new park.

By expanding their viewpoint to include the possibility that commercialism and development might be beneficial the partnership opens up a new path to the future. The model contained here and the concept for the future of the park outlined by the author leaves plenty of room for adjustment.

The essential pieces are:

1. The treatment of visitors
2. The need for transparency in contracting
3. The value of information regarding visitor usage.

If the partnership draws any conclusions from this document the author hopes that they include those three. The importance of these elements is their honesty. If visitors, ferry operators and the partners themselves get the feeling that they are treated fairly and openly the entire process will go more smoothly.

Visitors will be more enthusiastic, just ask anyone who visits a store or a restaurant or theme park where they were treated well. The positive word of mouth that results makes the best advertising. Similarly if ferry operators feel that they are privy to all the required information and they can identify what they need to do to win the contract they will be more likely to compete. Also when a quality operator loses a bid they should feel disappointed but not cheated. That nuance is crucial to retaining quality contractors in the bid pool.

As far as the information on visitors is concerned, the park needs that more than they know. All the capacity estimates are generated using gut feelings and estimates made by very experienced rangers. This is suitable for the current situation because the system is not overly taxed, but as soon as the visitorship rises above 200,000 or so it will be impossible for a single individual to keep track

of what is transpiring over the course of a day. At that point the park will need some quantitative data on which to base their decisions. That data, more than anything will help generate real numbers for the capacity of the system.

9.3.2 MORE CAPACITY THAN OBVIOUS

The other concept that this research touched on is the capacity of the system as a whole. The reality is that ultimate capacity depends on the vision that people have for the park in the future. With the assumptions detailed above, the use of the park is imperative. Maximizing that use creates a vision that involves more visitors than many people find palatable. It is the author's opinion that high use need not be inconsistent with the type of experience available on The Islands today.

The primary advantage of The Islands now is their number and variety. Because of their separation and variety there will always be more effort required to visit some islands than others do. That fact alone creates a protection for those islands. Given that, and the visitor flow control available using the shuttle ferry system, there is every reason to believe that the park will be able to maintain a wild and isolated feel to many of the islands. Also, the different islands with their different characters will lend themselves to different usage. The use of Spectacle could rise dramatically and allow a vast number of people to have an island experience without changing the experience people now have on George's or Peddock's.

The numbers show that the park can handle well over a million visitors a year even in its current situation, only the ferry service is lacking. If the ferry service were increased (assuming that people wanted to visit, of course), and Spectacle were ramped up to much more intense use, leaving Peddock's and George's and the rest to provide a more private and isolated feel, the park could hold far more than a million visitors a season. That kind of plan, where one island takes the brunt of the visitorship and the others maintain the existing feel, allows the islands to attract a wider cross-section of the population and provide them with a high quality experience.

The high use islands would generate a substantial cash flow that could preserve the other islands in a more pristine state. The author believes that this type of situation, analogous to the welfare system in this country, allows the islands to exist much the way they are now in perpetuity, surviving of the heavy use of one island. Spectacle seems the best choice to use in this way because of its history and proximity to the city. Admittedly the more urban feel that would result might offend those who know The Islands the way they are now, but in the long-term, preserving the islands may mean drawing out more people and their concern and money.

10.0 REFLECTION, INTEGRATION AND CONCLUSIONS

At a ferry contracting strategy meeting at the NPS office in Boston Sara Peskin stated that she hoped the Boston Harbor Islands would be a park for the 21st Century. She went on to say that the electronic ticketing system was a very interesting idea that might help the park reach that goal.

Regardless of where the park is headed the past shows, in the literature as well as the anecdotal recountings, that the momentum for urban parks is toward more private control and less federal funding. This means that urban parks like BOHA must fend for themselves. While BOHA and the GGNRA have access to the vast array of data on capacity utilization and usage models that the NPS has generated over the years, all of that data presumes that leaving the park alone will make it more valuable and help preserve the resources. Unfortunately that is exactly opposite to the situation in urban parks, particularly those with historical constructions that require maintenance.

The literature shows a distinct lack of data on the subject of visitor movement and usage for urban parks. Because urban parks like BOHA rely on user fees for some, if not all of their funding, that kind of data is sorely needed.

The unique contribution of this document to the field of park planning is its suggestion of an electronic means of tracking visitor usage. The data that such a system would provide would be invaluable to park planners in judging the areas of the park that require greater services, more Rangers, updated facilities or limiting of access. This is not to say that the educated guesswork and observation of the skilled Rangers is not needed. Far from it, the data from an electronic ticket system would add valuable numbers to the hunches and observations of those highly skilled professionals. Combining those sources of data would give the partnership unparalleled information with which to make managerial decisions.

The unique situation found at BOHA makes such a system possible. With the exception of private boaters every visitor must pass, usually one at a time, through a gangway onto a ferry before visiting any Island. The ferry operators have tremendous incentives to count each and every person getting on or off the vessels. So it is just a natural extension of that task that would give the park its precious information.

It is usual for authors in this situation to call for additional research or extensions of the current work to gain more information to clarify the situation. While that would be true in this case as well, the most important factor is the use of the system at all. If the author were to make suggestions as to the next step in this investigation it would be to focus on the data gathering system as that would provide information unique to BOHA and superior to any data from an existing urban park. BOHA could then become a benchmark for future studies of capacity utilization of urban "Recreation" Areas. Because BOHA's population is contained on The Islands and almost all access is controlled the author believes the data would be cleaner than any collected for a park of comparable size.

No other urban park in the literature reviewed keeps records of any kind on the duration of stay and vectors of its patrons. Such data would be a true contribution to the field of park planning.

APPENDICES

BOSTON HARBOR ISLANDS PARTNERSHIP MEMBERS

(AS OF JANUARY 1, 1998)

Boston Redevelopment Authority:

Thomas N. O'Brien, Director

Linda Mongelli Haar, Planning Director (alternate)

City of Boston:

Cathleen Douglas Stone

Lorraine Downey, Director, Environment Department (alternate)

Island Alliance:

Gerald Millet, President

Katherine F. Abbott, Executive Director (alternate)

Massachusetts Department of Environmental Management:

Peter C. Webber, Commissioner

Todd Frederick, Forest and Parks Director (alternate)

Massachusetts Port Authority:

Louis A. Cabral, Special Liaison, Government and Community Affairs

James Doolin, Deputy Director, Urban Planning (alternate)

Massachusetts Water Resources Authority:

Trudy Coxe, Secretary, Executive Office of Environmental Affairs, and Chair, MWRA

Douglas B. MacDonald, Executive Director (alternate)

Metropolitan District Commission:

David Balfour, Commissioner

Brian Broderick, Director, Reservations and Historic Sites Unit (alternate)

National Park Service:

Terry W. Savage, Superintendent, Boston Support Office

George Price, Project Manager, Boston Harbor Islands (alternate)

Thompson Island Outward Bound Education Center:

Peter O. Willauer, Chair

Alden I. Gifford, Board Member (alternate)

The Trustees of Reservations:

Richard T. Howe, Director, Property Management

Lisa Vernegaard, Associate Director, Planning and Ecology (alternate)

United States Coast Guard:

Capt. Kent Kirkpatrick, Commander, Coast Guard Group Boston

Cmdr. Daniel R. May, Deputy Commander, Coast Guard Group Boston (alternate)

Two of the 13 seats are vacant and will be filled by members of the Advisory Council.

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<http://www.wenet.net/erasf/PAPERS/future.html> Whole Earth Network, link to Economics Research Associates Website. Changed to: <http://www.econres.com/papers.html>

<http://venus.census.gov/cdrom/lookup> United States Census Bureau, CDRom Website.